

**Kawasaki**

**KR-1S**



**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.



**KR-1S**

# Motorcycle

# Service Manual

# Supplement

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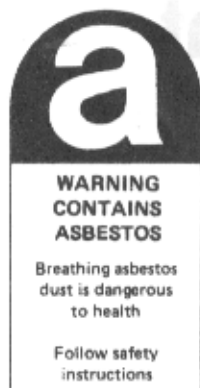
No liability can be accepted for any inaccuracies or omissions in this publication, although every possible care has been taken to make it as complete and accurate as possible.

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

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

## LIST OF ABBREVIATIONS

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



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

Brake Shoes or Pads  
Clutch Friction Material  
Gaskets  
Insulators

### SAFETY INSTRUCTIONS

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

**Read OWNER'S MANUAL before operating.**

# Foreword

This KR-1S Service Manual Supplement is designed to be used in conjunction with the KR-1 Motorcycle Service Manual (P/N 99924-1084-02). The maintenance and repair procedures described in this supplement are only those that are unique to the KR-1S motorcycle. Most service operations for these models remain identical to those described in the base Service Manual. Complete and proper servicing of the KR-1S motorcycle therefore requires both this supplement and the base Service Manual.

The base Service Manual and this Supplement are designed primarily for use by motorcycle mechanics in a properly equipped shop. However, they contain enough detail and basic information to make them useful to the operator who desires to perform his own basic knowledge mechanics, the proper use of tools, and work shop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the operator has insufficient experience or doubts his ability to 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 himself with the procedures before starting work, and then do the work carefully in a clean area. Whenever special tools or equipment are specified, makeshift tools or equipment should not be used. Precision measurements can only be made if the proper instruments are used, and the use of substitute tools may adversely affect safe operation of the motorcycle.

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

To get the longest life out of your Motorcycle:

- Follow the Periodic Maintenance Chart in the 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 Catalog. Genuine parts provided as spare parts are listed in the Parts Catalog.

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

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## How to Use this Manual

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

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

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

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

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

### WARNING

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

### CAUTION

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

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

### NOTE

- *This note symbol indicates points of particular interest for more efficient and convenient operation.*
- Indicates a procedural step or work to be done.
- Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a Note.
- ★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

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

**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.

The KR 12 motorcycle is a four-stroke, liquid-cooled, single-cylinder, carburetor-fed engine. It is designed to be used in conjunction with the KR 12 Motorcycle Service Manual (Part No. 9999-000-00). The maintenance and repair procedures described in this manual are for those that are unique to the KR 12 motorcycle. Most service operations for these models remain identical to those described in the other Service Manuals (Columbia and proper working of the KR 12 motorcycle. The proper working of this equipment and the basic operation of the

The KR 12 Service Manual is the complete and designed primarily for use by motorcycle mechanics in a properly equipped shop. However, they contain enough detail and basic information to make them useful to the operator who desires to perform his own basic maintenance and repair. The manual is intended to be used by both experienced and inexperienced motorcycle mechanics. Wherever the operator has insufficient experience or lacks the ability to 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 before starting work and then do the work carefully in a systematic manner. If you are uncertain of the correct procedure, make a note of the problem and do not attempt to make a repair until you have read the manual. If the proper instruments are used and the use of special tools may adversely affect the operation of the motorcycle, use special tools. For the duration of your warranty period, especially, we recommend that all repairs and scheduled maintenance be performed in accordance with the service manual. All repairs and scheduled maintenance should be performed in accordance with this manual. The manual may vary from the version of the manual that you have.

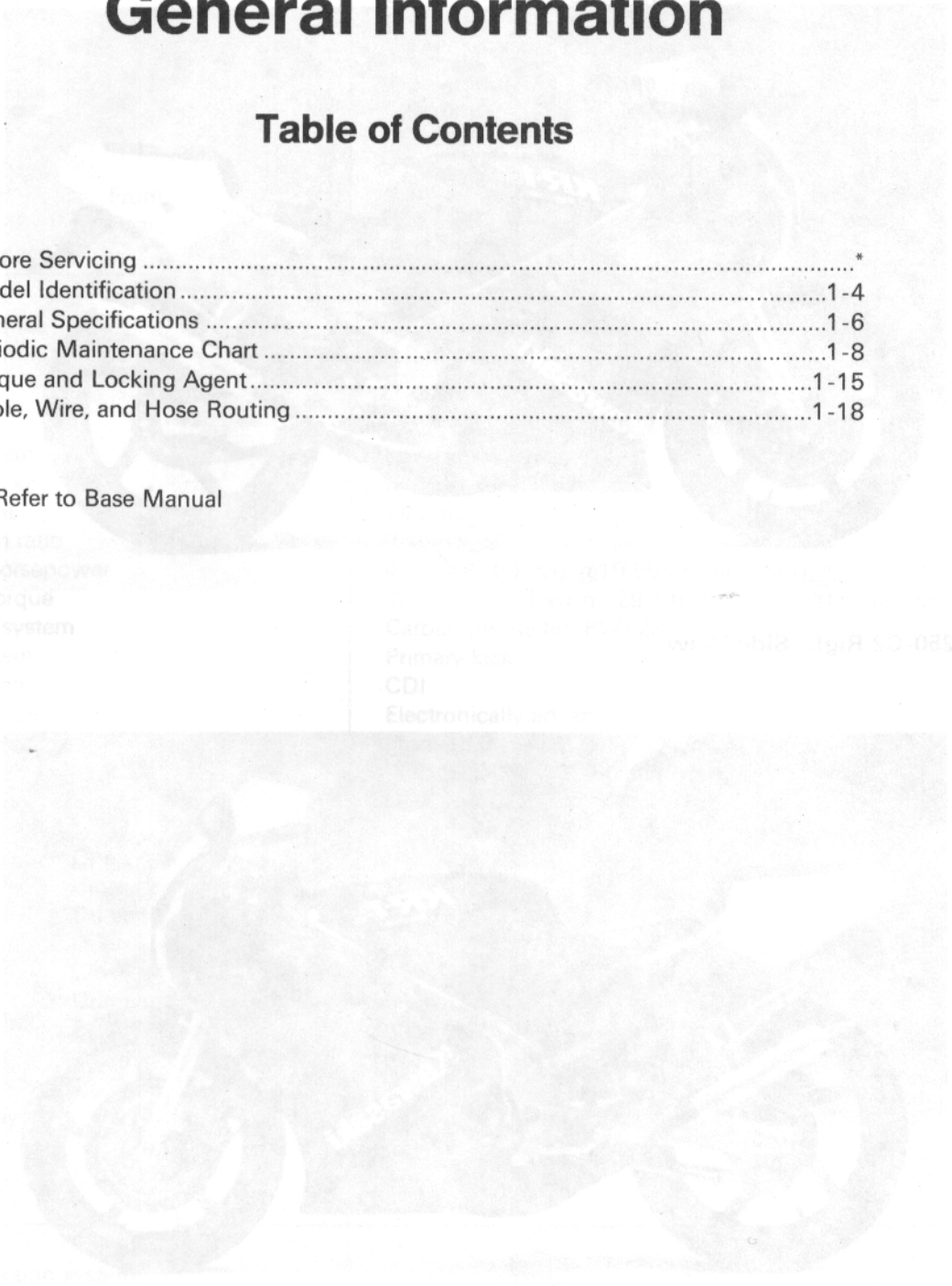
To get the longest life out of your Kawasaki motorcycle, follow the Periodic Maintenance Chart in the Service Manual. Schedule for problems and non-scheduled maintenance. Use proper tools and fasteners. Use special tools, gauges, and fasteners that are necessary when servicing Kawasaki motorcycle. Use the special tool Catalog. Genuine parts provided as spare parts are listed in the Parts Catalog.

# General Information

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\* : Refer to Base Manual



Carbon fiber side panel  
 Primary Air  
 CDI  
 Electronically actuated

## 1-2 GENERAL INFORMATION

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### Model Identification

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KR250-C2 Left Side View:



KR250-C2 Right Side View:





## General Specifications

Items	KR250-C2
<b>Dimensions:</b>	
Overall length	2 015 mm (A) 2 005 mm, (S) 1 945 mm
Overall width	695 mm
Overall height	1 105 mm
Wheelbase	1 365 mm (A) 1 370 mm
Road clearance	120 mm
Seat height	755 mm
Dry weight	131 kg
Curb weight:	
Front	77 kg
Rear	77 kg
Fuel tank capacity	16.0 L
<b>Performance:</b>	
Braking distance	12.5 m from 50 km/h
Minimum turning radius	3.2 m
<b>Engine:</b>	
Type	2-stroke, Crankcase Reed Valve, 2-cylinder
Cooling system	Liquid-cooled
Bore and stroke	56.0 x 50.6 mm
Displacement	249 mL
Compression ratio	7.4
Maximum horsepower	44.1 kW (60 PS) @10 500 r/min (rpm)
Maximum torque	40.2 N-m (4.1 kg-m, 29.7 ft-lb) @10 500 r/min (rpm)
Carburetion system	Carburetor, Keihin PWK28 x 2
Starting system	Primary kick
Ignition system	CDI
Timing advance	Electronically advanced
Ignition timing	From 13.5° BTDC @1 200 r/min (rpm) to 25° BTDC @7 500 r/min (rpm)
Spark plug	NGK BR10ES
Valve timing:	
Inlet	Open
	Close
	Duration
Exhaust	Open
	Close
	Duration
Scavenging	Open
	Close
	Duration
Lubrication system	Superlube (oil injection)
Engine oil:	
Type	2-stroke oil
Capacity	1.2 L
<b>Drive Train:</b>	
Primary reduction system:	
Type	Gear
Reduction ratio	2.541 (61/24)
Clutch type	Wet multi disc

## 1-4 GENERAL INFORMATION

Item	KR250-C2
<b>Transmission:</b> Type Gear ratios:   1st 2nd 3rd 4th 5th 6th  <b>Final drive system:</b> Type Reduction ratio Overall drive ratio  <b>Transmission oil:</b> Grade Viscosity Capacity	6-speed, constant mesh, return shift 2.533 (38/15) 1.727 (38/22) 1.315 (25/19) 1.086 (25/23) 0.962 (26/27) 0.862 (25/29)  Chain drive 2.733 (41/15) 5.988 @Top gear  SE class SAE 10W30 or 10W40 0.85 L
<b>Frame:</b> Type Caster (rake angle) Trail <b>Front tire:</b> Type Size <b>Rear tire:</b> Type Size <b>Front suspension:</b> Type Wheel travel <b>Rear suspension:</b> Type Wheel travel <b>Brake type:</b> Front Rear	Tubular, diamond 24° 90 mm  Tubeless 110/70 VR17  Tubeless 140/60 VR18  Telescopic fork 120 mm  Swing arm (uni-trak) 105 mm  Dual disc Single disc
<b>Electrical Equipment:</b> Battery <b>Headlight:</b> Type Bulb <b>Tail/brake light</b> <b>Magneto:</b> Type Rated output <b>Voltage regulator:</b> Type	12 V 4 Ah  Semi-sealed beam 12 V 60/55 W (quartz-halogen) 12 V 5/21 W, (S) 12 V 8/27 W  Three-phase AC 14 A @8 000 r/min (rpm), 14 V  Short-circuit

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

- (A) : Australian Model  
 (S) : South African Model

## Periodic Maintenance Chart

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

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

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

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

## 1-6 GENERAL INFORMATION

### Torque and Locking Agent

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

Letters used in the "Remarks" column mean:

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

LG : Apply liquid gasket – silver (Kawasaki bond: 92104-002) to the threads.

S : Tighten the fasteners following the specified sequence.

SS : Apply a silicone sealant (Kawasaki bond: 56019-120) to the threads.

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
<b>Cooling System:</b>				
Coolant Temperature Sensor	15	1.5	11.0	SS
Drain Plug	17	1.7	12.0	
Impeller Shaft Nut	9.8	1.0	87 in-lb	
<b>Engine Top End:</b>				
Cylinder Head Bolts	25	2.5	18.0	S
Cylinder Head Nuts	22	2.2	16.0	S
Exhaust Valve Operating Unit Screw	2.9	0.3	26 in-lb	
Exhaust Valve Operating Unit Connecting-rod Screws	–	–	–	L
Cylinder Studs	9.8	1.0	87 in-lb	
<b>Engine Right Side:</b>				
Clutch Spring Bolts	9.8	1.0	87 in-lb	
Kick Stopper Mounting Screws	–	–	–	L
<b>Engine Lubrication System:</b>				
Transmission Oil Drain Plug	20	2.0	14.5	
Oil Pump Outlet Hose Banjo Bolts	4.9	0.5	43 in-lb	
<b>Engine Removal/Installation:</b>				
Engine Mounting Bolts	49	5.0	36	
<b>Crankshaft/Transmission:</b>				
Crankcase Bolts (8 mm Dia.)	25	2.5	18.0	
Crankcase Bolts (6 mm Dia.)	9.8	1.0	87 in-lb	
Shift Drum Pin Plate Bolt	22	2.2	16.0	L
Shift Drum Positioning Lever Mounting Bolt	9.8	1.0	87 in-lb	
Gear Positioning Lever Stud	22	2.2	16.0	L
Balancer Cover Mounting Bolts (8 mm Dia.)	25	2.5	18.0	
Balancer Cover Mounting Bolts (6 mm Dia.)	9.8	1.0	87 in-lb	
<b>Wheels/Tires:</b>				
Front Axle Nut	88	11.0	65	
Front Axle Clamp Bolts	20	2.0	14.5	

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Rear Axle Nut	88	9.0	65	
<b>Final Drive:</b>				
Engine Sprocket Holding Plate Bolts	9.8	1.0	87 in-lb	
Rear Sprocket Nuts	59	6.0	43	
Rear Coupling Studs	-	-	-	L
<b>Brakes:</b>				
Front Caliper Mounting Bolts	34	3.5	25	
Front Caliper Bolts	20	2.0	14.5	
Front Caliper Spring Mounting Screws	2.9	0.3	26.0 in-lb	
Rear Caliper Mounting Bolts	25	2.5	18.0	
Brake Hose Banjo Bolts	25	2.5	18.0	
Disc Mounting Allen Bolts	23	2.3	16.5	
Brake Lever Pivot Nut	5.9	0.6	52 in-lb	
Front Master Cylinder Clamp Bolts	8.8	0.9	78 in-lb	
Torque Link Nut (Front)	34	3.5	25	
Torque Link Nut (Rear)	14	1.4	10.0	
Rear Master Cylinder Mounting Bolts	25	2.5	18.0	
Bleed Valves	7.8	0.8	69 in-lb	
Brake Pedal Mounting Bolt	25	2.5	18.0	
<b>Suspension:</b>				
<b>Front Fork:</b>				
Fork Top Bolts	22	2.25	16.3	
Fork Clamp Bolts (Upper)	20	2.0	14.5	
Fork Clamp Bolts (Lower)	20	2.0	14.5	
Bottom Allen Bolts	61	6.2	45	L
Drain Screws	-	-	-	LG
Axle Clamp Bolts	20	2.0	14.5	
<b>Rear Shock Absorber:</b>				
Shock Absorber Bolts	49	5.0	36	
Rocker Arm Bolt	49	5.0	36	
Swing Arm Pivot Nut	93	9.5	69	
Rocker Arm Nut	49	5.0	36	
<b>Steering:</b>				
Steering Stem Head Nut	39	4.0	29	
Handlebar Holder Clamp Bolts	20	2.0	14.5	
Handlebar Holder Allen Bolts	9.8	1.0	87 in-lb	L
Handlebar Clamp Bolts	23	2.3	16.5	
<b>Frame:</b>				
Side Stand Bracket Mounting Bolts	25	2.5	18.0	L
<b>Electrical System:</b>				
Spark Plug	27	2.8	20	
Magneto Rotor Bolt	98	10.0	72	
Coolant Temperature Sensor	15	1.5	11.0	SS
Neutral Switch	15	1.5	11.0	
Side Stand Switch Mounting Screws	-	-	-	L

## 1-8 GENERAL INFORMATION

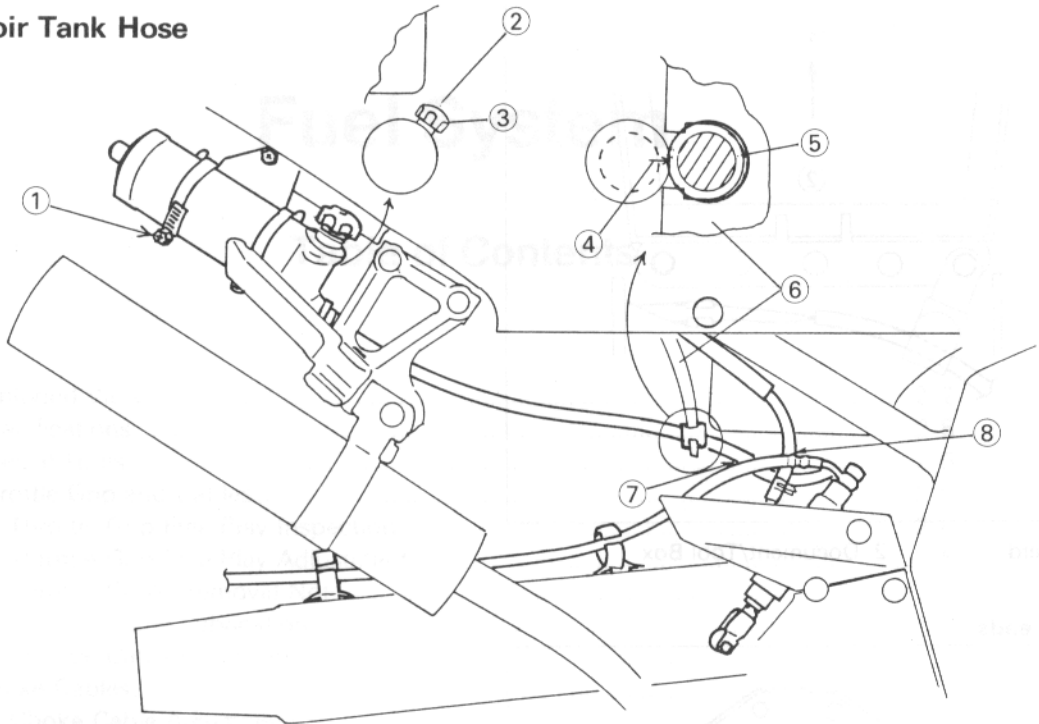
The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

### General Fasteners

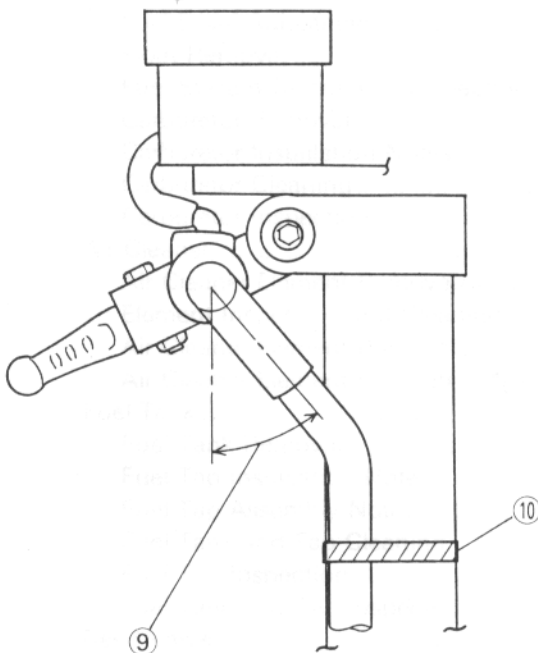
Threads dia. (mm)	Torque		
	N-m	kg-m	ft-lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in-lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in-lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125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

Cable, Wire, and Hose Routing

Gas Reservoir Tank Hose



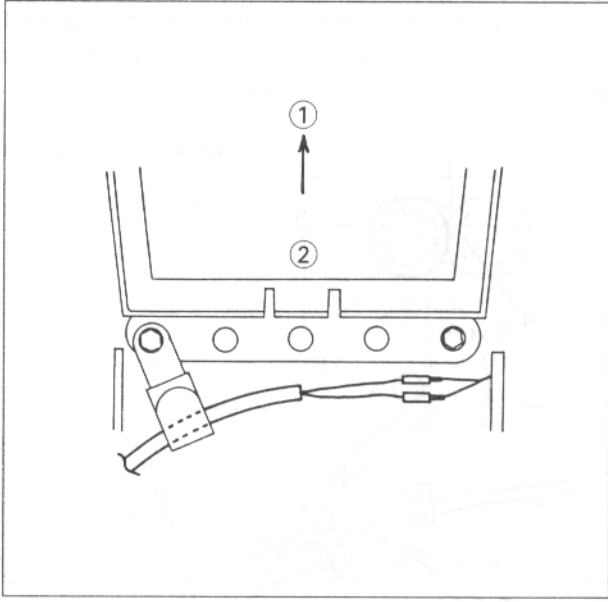
Front Brake Hose



1. Come the clamp screw to lower side.
2. Come the adjusting know to the under side of the seat cover.
3. Adjusting Knob
4. Push in to the oil hose into the fender clamp.
5. Rubber Damper
6. Push in to the oil hose into the fender clamp.
7. Gas Reservoir Tank Hose
8. Brake Reservoir Tank Hose
9. 30° ~ 40°
10. Clamp the brake hose with the wiring harness.

# 1-10 GENERAL INFORMATION

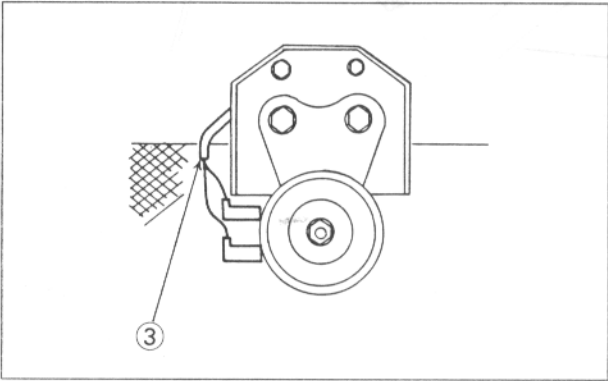
## Rear Left Turn Signal Leads



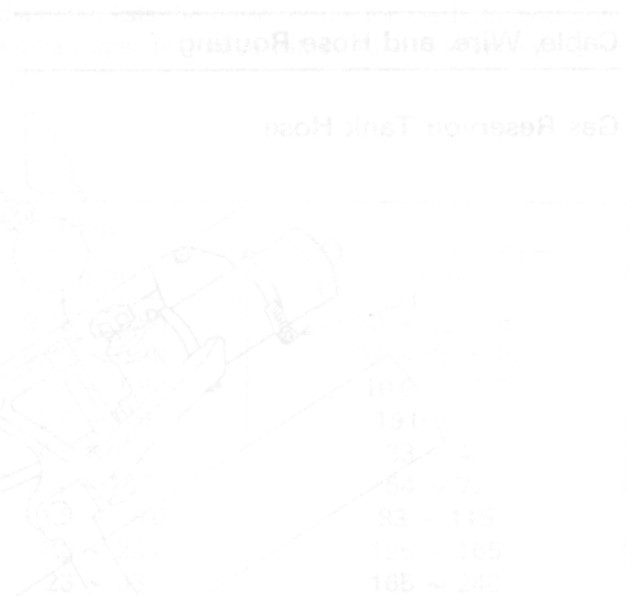
1. Forward

2. Document/Tool Box

## Horn Leads



3. Route the horn leads to the radiator mounting bracket right side.



7. Come the adjuster to the wheel  
8. Come the adjuster to the wheel  
9. Adjusting knob  
10. Push to the oil tank  
11. Rubber Damper  
12. Push to the adjuster  
13. Gas Reservoir Tank Hose  
14. Brake Reservoir Tank Hose  
15. 40 - 450



# Fuel System

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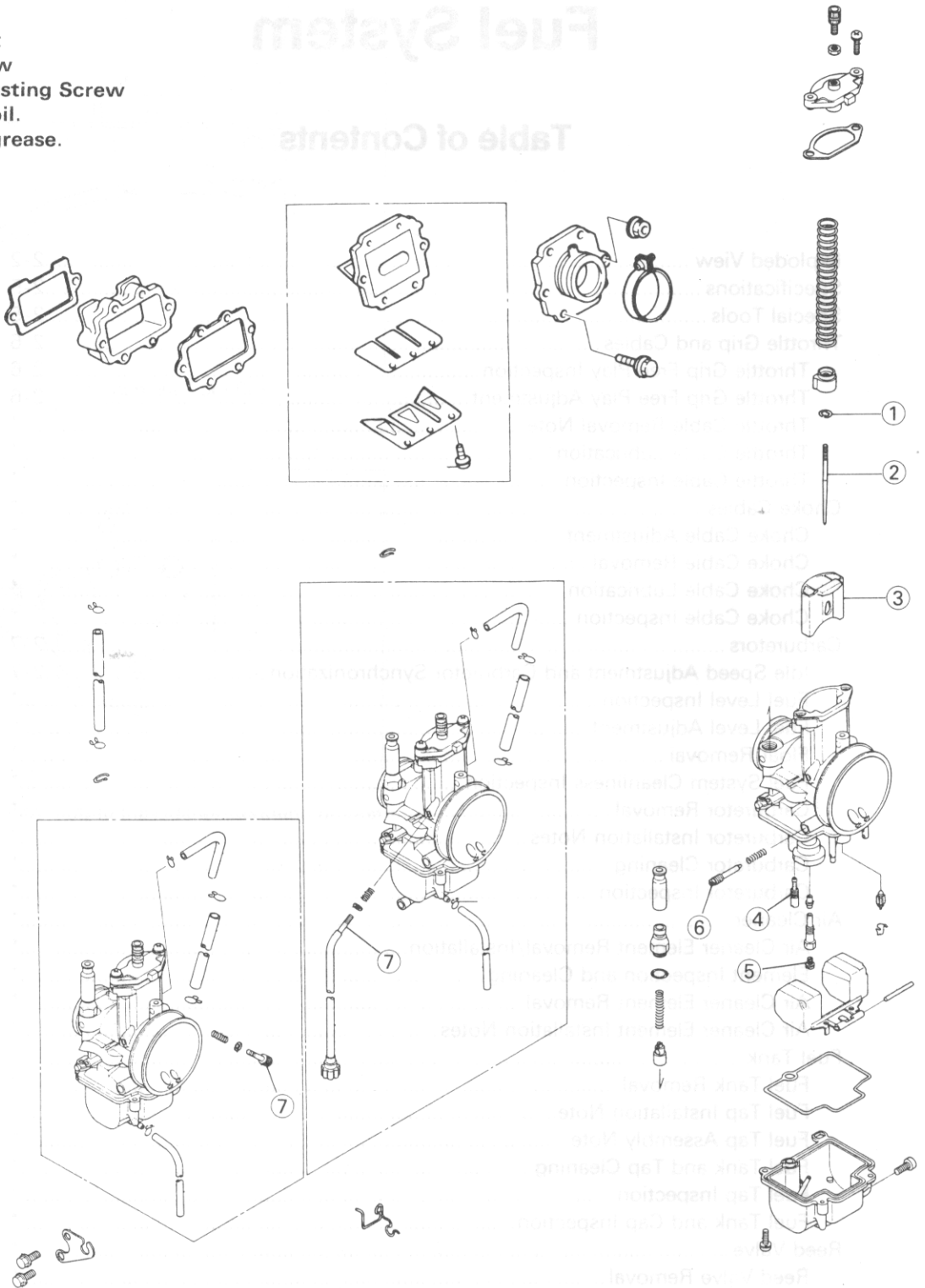
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\* : Refer to Base Manual

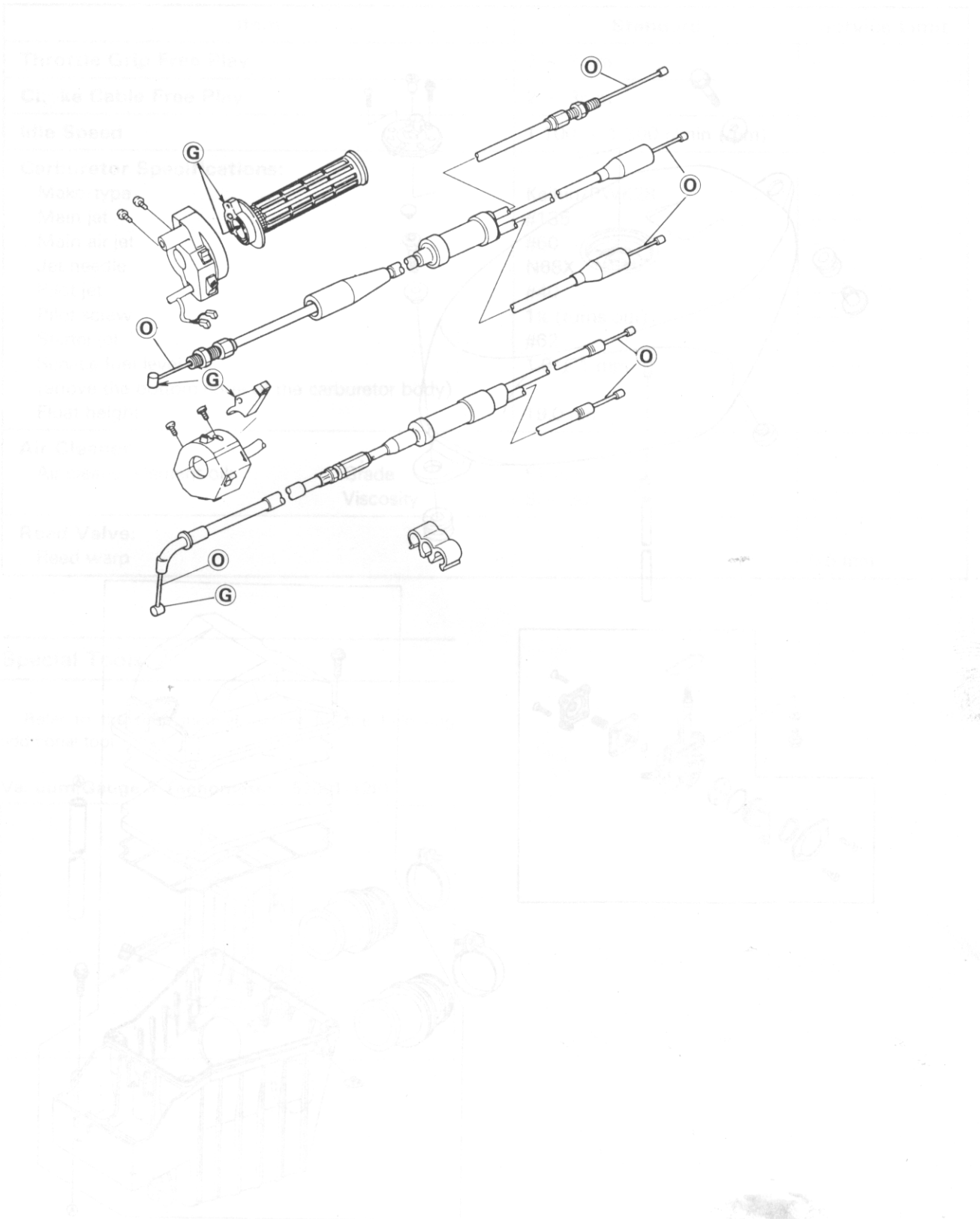
## 2-2 FUEL SYSTEM

### Exploded View

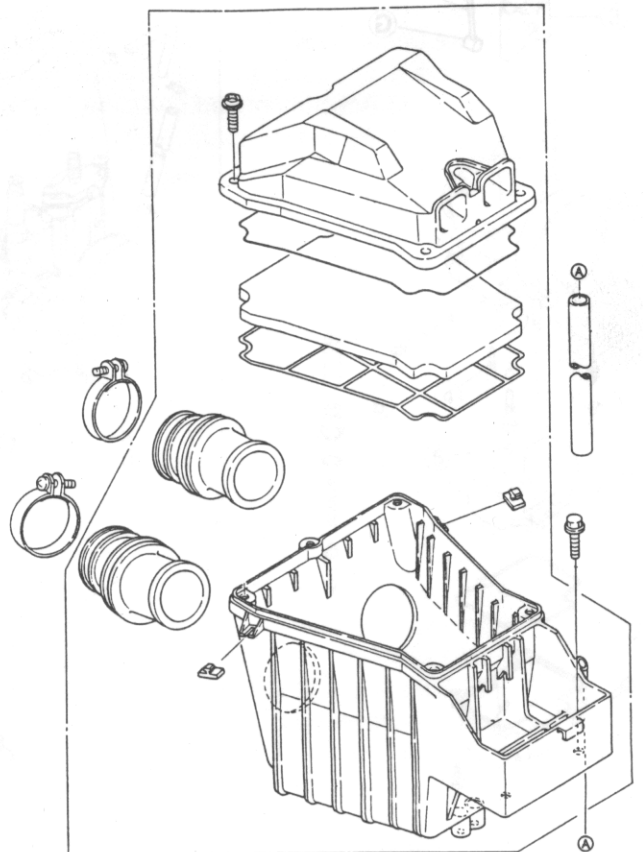
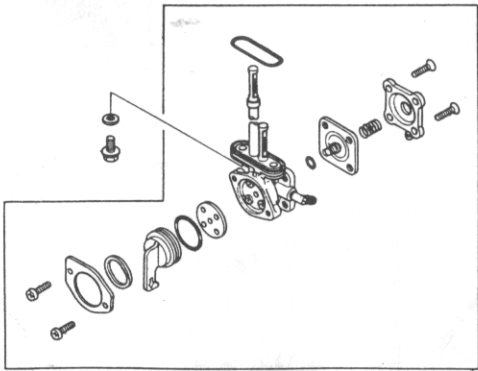
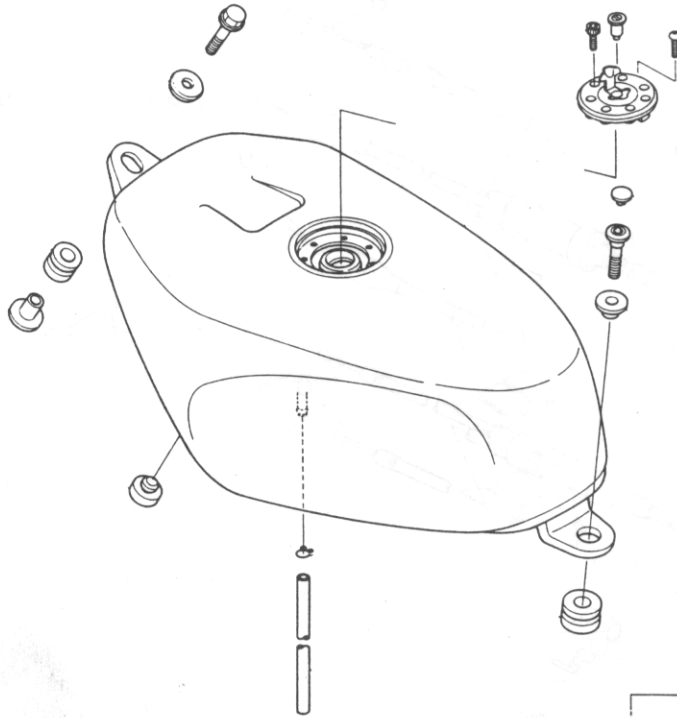
1. Jet Needle Clip
  2. Jet Needle
  3. Throttle Valve
  4. Pilot Jet
  5. Main Jet
  6. Air Screw
  7. Idle Adjusting Screw
- O : Apply oil.  
G : Apply grease.



Specifications



# 2-4 FUEL SYSTEM



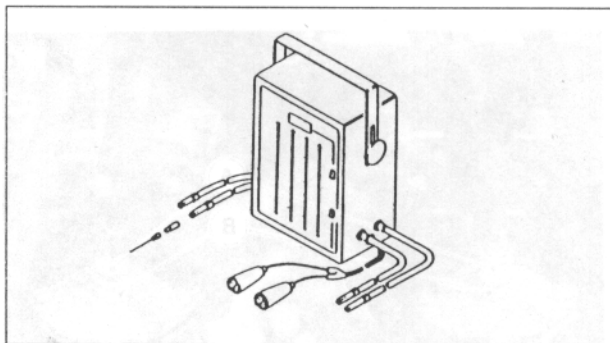
**Specifications**

Item	Standard	Service Limit
Throttle Grip Free Play	2 ~ 3mm	---
Choke Cable Free Play	2 ~ 3mm	---
Idle Speed	1 100 ~ 1 300 r/min (rpm)	---
<b>Carburetor Specifications:</b>		
Make/type	Keihin/PWK28	---
Main jet	#135	---
Main air jet	#60	---
Jet needle	N68X	---
Pilot jet	#40	---
Pilot screw	1½ (turns out)	---
Starter jet	#62	---
Service fuel level (above the bottom edge of the carburetor body)	1.0 ± 1 mm	---
Float height	19.0 mm	---
<b>Air Cleaner:</b>		
Air cleaner element oil:	Grade	---
	Viscosity	---
	SE class	---
	SAE 30	---
<b>Reed Valve:</b>		
Reed warp	---	0.5 mm

**Special Tools**

Refer to the base manual, except for the following additional tool.

**Vacuum Gauge & Tachometer: 57001-1291**



## 2-6 FUEL SYSTEM

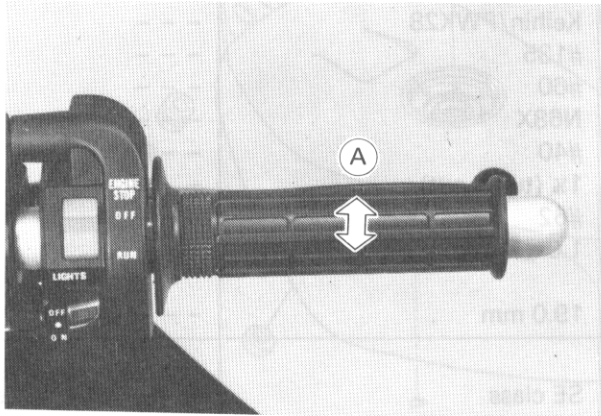
### Throttle Grip and Cables

#### Throttle Grip Play Inspection

- Check the throttle grip free play.
- ★ If free play is not correct, adjust the throttle cable.

#### Throttle Grip Free Play

2 ~ 3 mm



A. Grip Free Play

- ★ If the free play is incorrect, make the following test.
- Start the engine.
- Turn the handlebar from side to side while idling the engine.
- ★ If idle speed varies, the throttle control cable may be poorly routed or it may be damaged.
- Correct any problem before operating the motorcycle.

#### **⚠ WARNING**

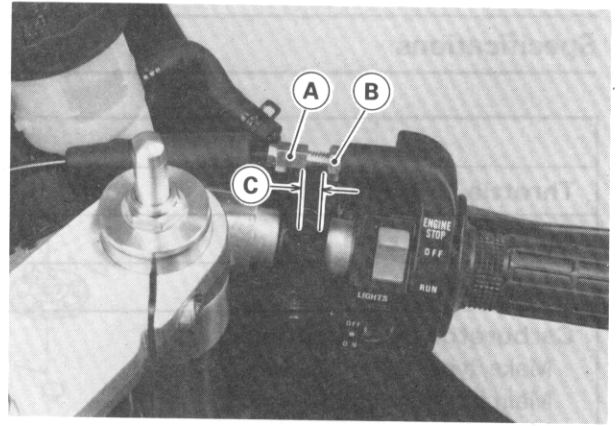
Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

#### Throttle Grip Play Adjustment

##### NOTE

○ If throttle grip play is adjusted, check the oil pump and carburetor synchronization.

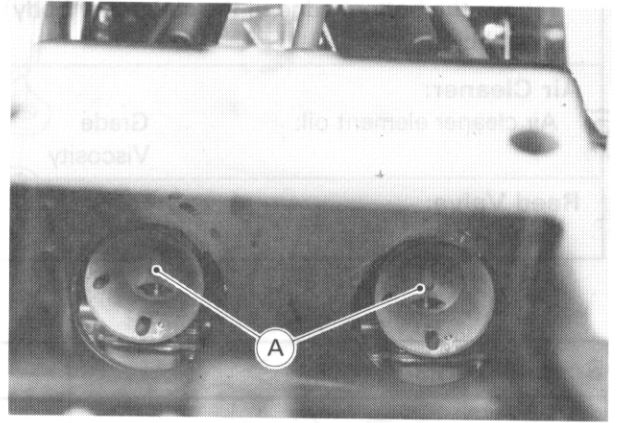
- Remove the following.
  - Seat
  - Side Cover
  - Fuel Tank
  - Air Cleaner Housing Cover
  - Air Cleaner Element
  - Air Cleaner Element Frame
- Loosen the locknut at the throttle grip.
- Turn in the adjuster so that 5 ~ 6 mm of threads are visible. And tighten the locknut.



A. Adjuster  
B. Locknut

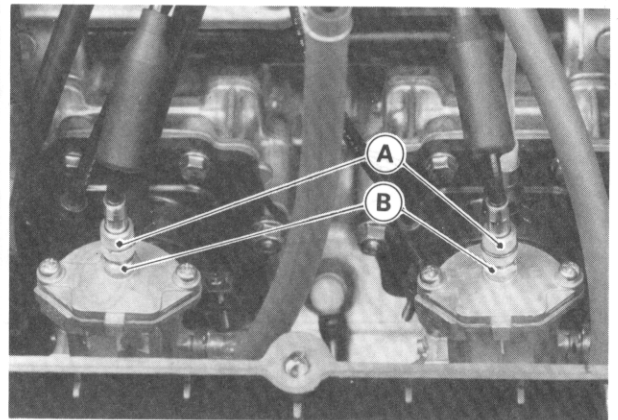
C. 5 ~ 6 mm

- Adjust the throttle cables so that both throttle valves operate together and at the same level.



A. Throttle Valve

- Back out the idle adjust screws and loosen the locknuts and adjusters on the top of the carburetors.



A. Adjuster

B. Locknut

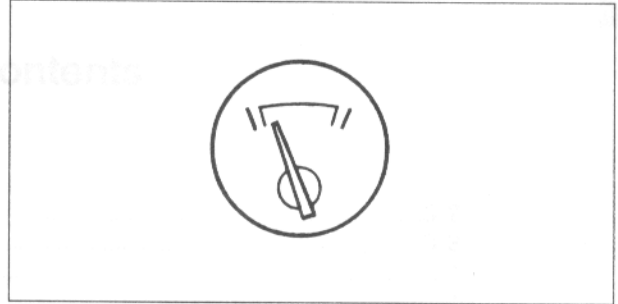
- Check that both throttle valves are resting at the bottom of the throttle bores.
- Put your finger on throttle valve and watch the other one.
- Turn the throttle grip to open and close the throttle valves.

- Adjust the throttle cables so both throttle valves move at the same time.
- Open the throttle and raise the throttle valves in the carburetor bore until they are just about to disappear at the top of the bore. Check that they are both at the same level.
- Tighten the locknuts.
- Check that there is 2 ~ 3 mm throttle grip play.
- ★ If there is improper play, adjust it.
- Start the engine.
- Adjust the idle speed.
- Turn the handlebar from side to side while idling the engine.
- ★ If idle speed varies, the cable may be poorly routed or it may be damaged.
- Correct any problem before operating the motorcycle.

## Carburetors

### Idle Speed Adjustment and Carburetor Synchronization

- Thoroughly warm up the engine until the needle of the coolant temperature gauge indicates as shown.



#### ⚠ CAUTION

Do not run the engine over 6 000 r/min (rpm).

- With the engine idling, turn the handlebar to both sides. If handlebar movement changes the idle speed, the throttle cable may be improperly adjusted or incorrectly routed, or it may be damaged. Be sure to correct any of these conditions before riding.

#### ⚠ WARNING

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

- Check idle speed.
- ★ If the idle speed is not correct, continue with the following procedure.

### Idle Speed

**Standard:** 1 100 ~ 1 300 r/min (rpm)

- Move the fuel tank.
- Attach the vacuum gauge & tachometer (special tool: 57001-1291) to the fittings on the carburetor holders.
- According to the instruction of it.
- Turn the RH carburetor idle adjusting screw until idle speed is correct.

#### NOTE

- Be sure to adjust the idle speed with the idle adjusting screw on the RH carburetor first. If you start off with the adjusting screw on the LH carburetor, synchronization of carburetors will be disturbed, resulting in difficult idle speed adjustment.

- Turn the throttle grip back and forth to vary the engine revolution. Check that the idle speed comes back to 1

## 2-8 FUEL SYSTEM

200 r/min (rpm) smoothly when releasing the throttle grip.

- ★ If the idle speed is not stable or there is any problem, synchronize the carburetors by turning the RH and LH adjusting screws with the idle speed keeping 1 200 r/min (rpm).



### CAUTION

Do not run the engine over 3 000 r/min.

When the engine is running, turn the handle to the right or left to adjust the idle speed. The engine may be stopped if the handle is turned too far to the right or left. Be careful to return the handle to the center position before the engine is stopped.

### WARNING

Operation with a high speed is dangerous. Do not touch the engine or any parts of the engine while it is running. Do not touch the carburetor while the engine is running.

If the engine speed is not stable, adjust the idle speed by turning the handle to the right or left. The engine may be stopped if the handle is turned too far to the right or left. Be careful to return the handle to the center position before the engine is stopped.

Idle Speed

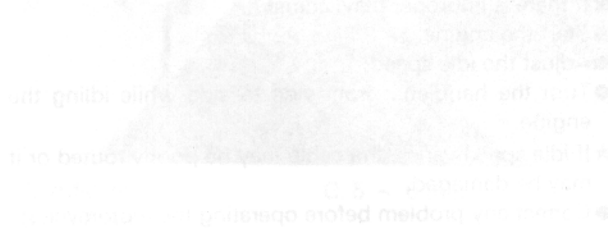
Standard 1 200 r/min (rpm)

- Move the handle to the right or left to adjust the idle speed.
- Attach the wrench to the adjusting screw (RH) and turn it clockwise or counter-clockwise to adjust the idle speed.
- Turn the RH adjusting screw clockwise to increase the idle speed.

### NOTE

When the engine is running, turn the handle to the right or left to adjust the idle speed. The engine may be stopped if the handle is turned too far to the right or left. Be careful to return the handle to the center position before the engine is stopped.

- Adjust the throttle cable to both sides at the same time.
- Open the throttle cable for 10 seconds after the carburetor has been adjusted to the standard idle speed.
- Give the engine 10 seconds to warm up.
- Turn the throttle grip to the center position.



When the engine is running, turn the handle to the right or left to adjust the idle speed. The engine may be stopped if the handle is turned too far to the right or left. Be careful to return the handle to the center position before the engine is stopped.



When the engine is running, turn the handle to the right or left to adjust the idle speed. The engine may be stopped if the handle is turned too far to the right or left. Be careful to return the handle to the center position before the engine is stopped.



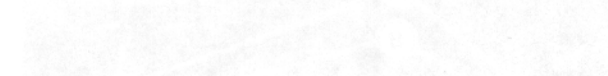
When the engine is running, turn the handle to the right or left to adjust the idle speed. The engine may be stopped if the handle is turned too far to the right or left. Be careful to return the handle to the center position before the engine is stopped.



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# Cooling System

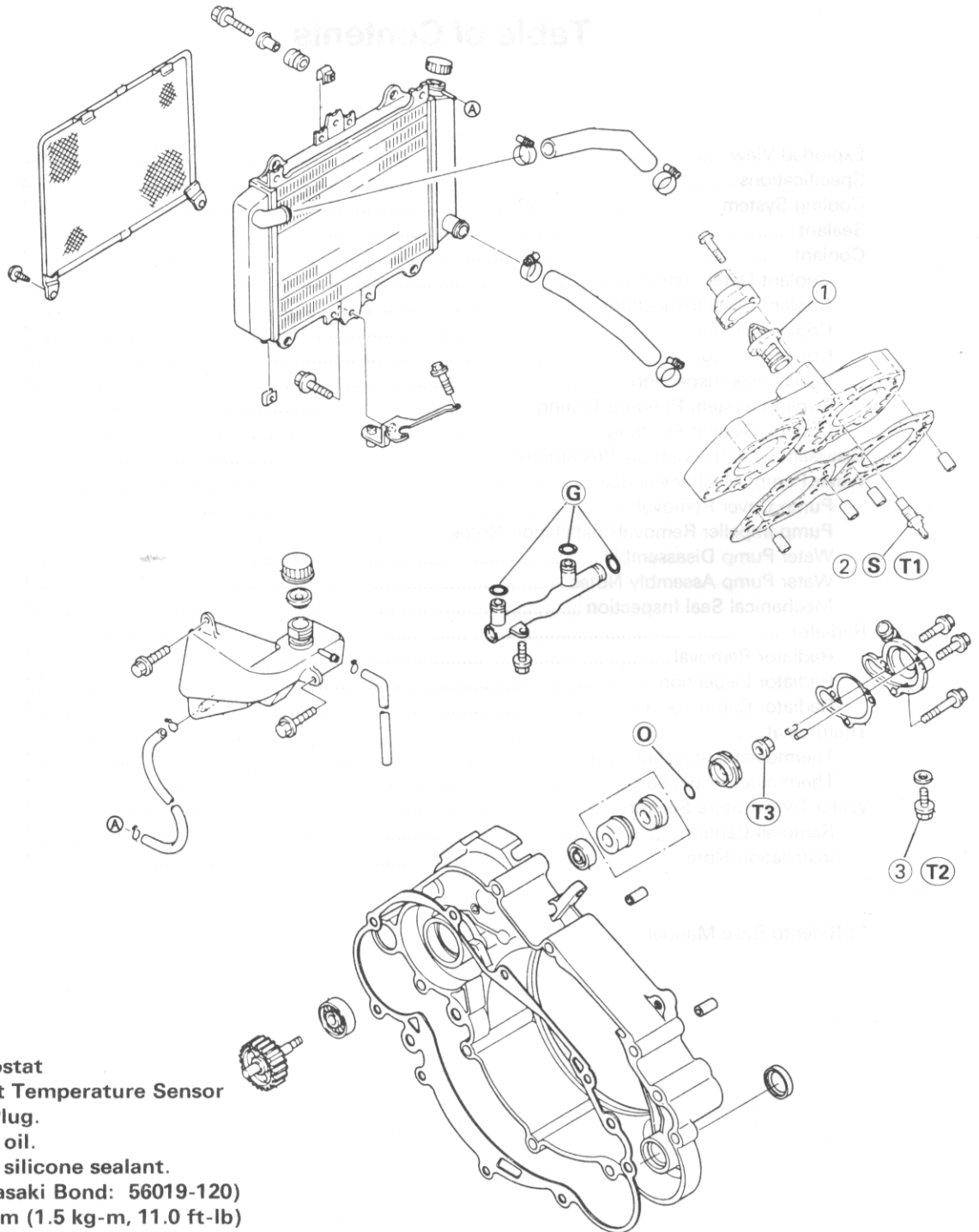
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\* : Refer to Base Manual

## 3-2 COOLING SYSTEM

### Exploded View



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**Specifications**


---

Items	Standard
<b>Coolant Provided when shipping:</b> Type Color Mixed ratio Freezing point Total amount	Permanent type of antifreeze for aluminum engine and radiator Green Soft water 50%, coolant 50% -35°C (-31°F) 1.5 L (Up to reservoir tank full level)
<b>Radiator Cap:</b> Relief pressure	74 ~ 103 kPa (0.75 ~ 1.05 kg/cm <sup>2</sup> , 11 ~ 15 psi)
<b>Thermostat:</b> Valve opening temperature Valve full opening lift	63.5 ~ 66.5°C (147 ~ 153°F) Not less than 6mm @80°C (176°F)

# Engine Top End

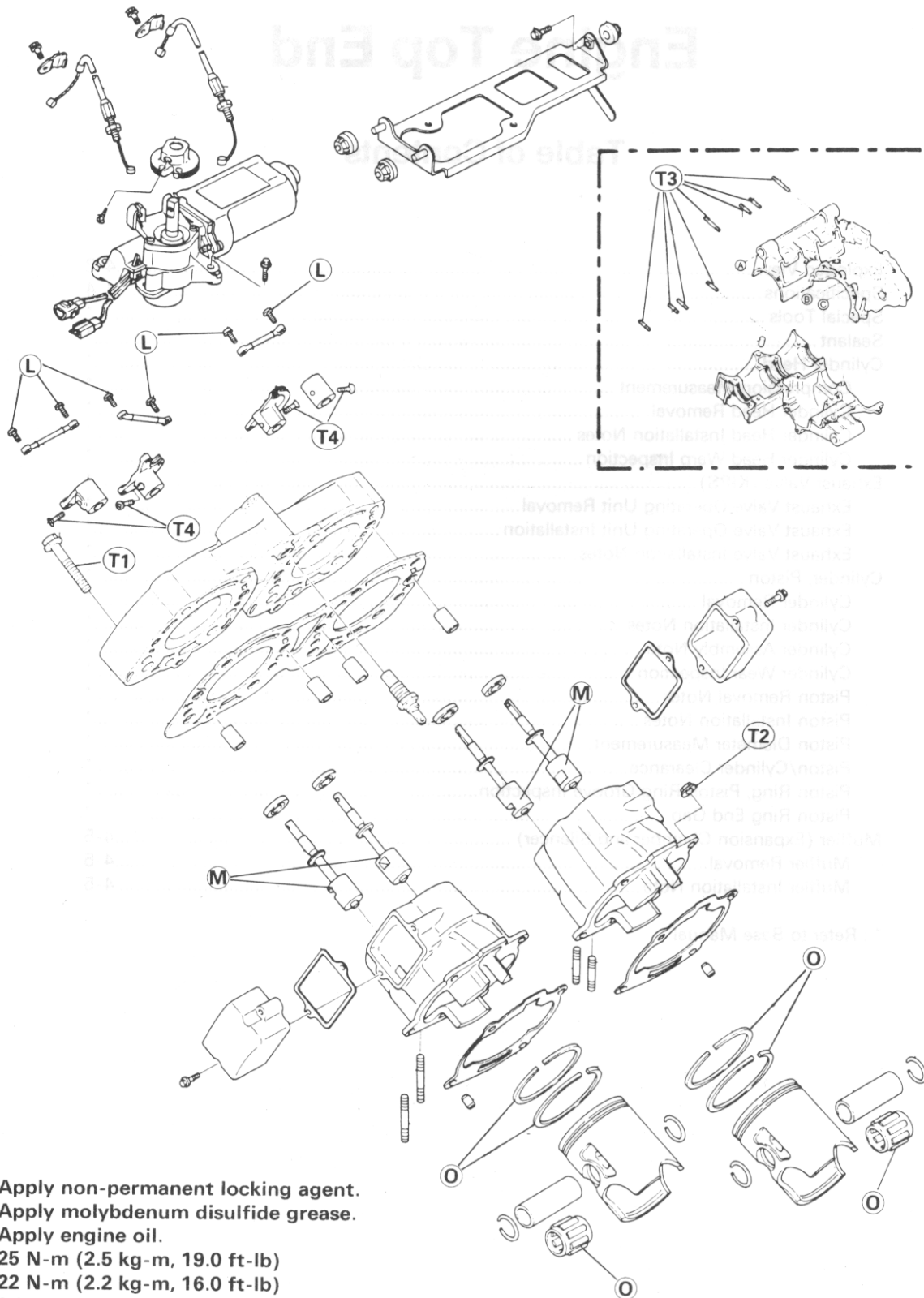
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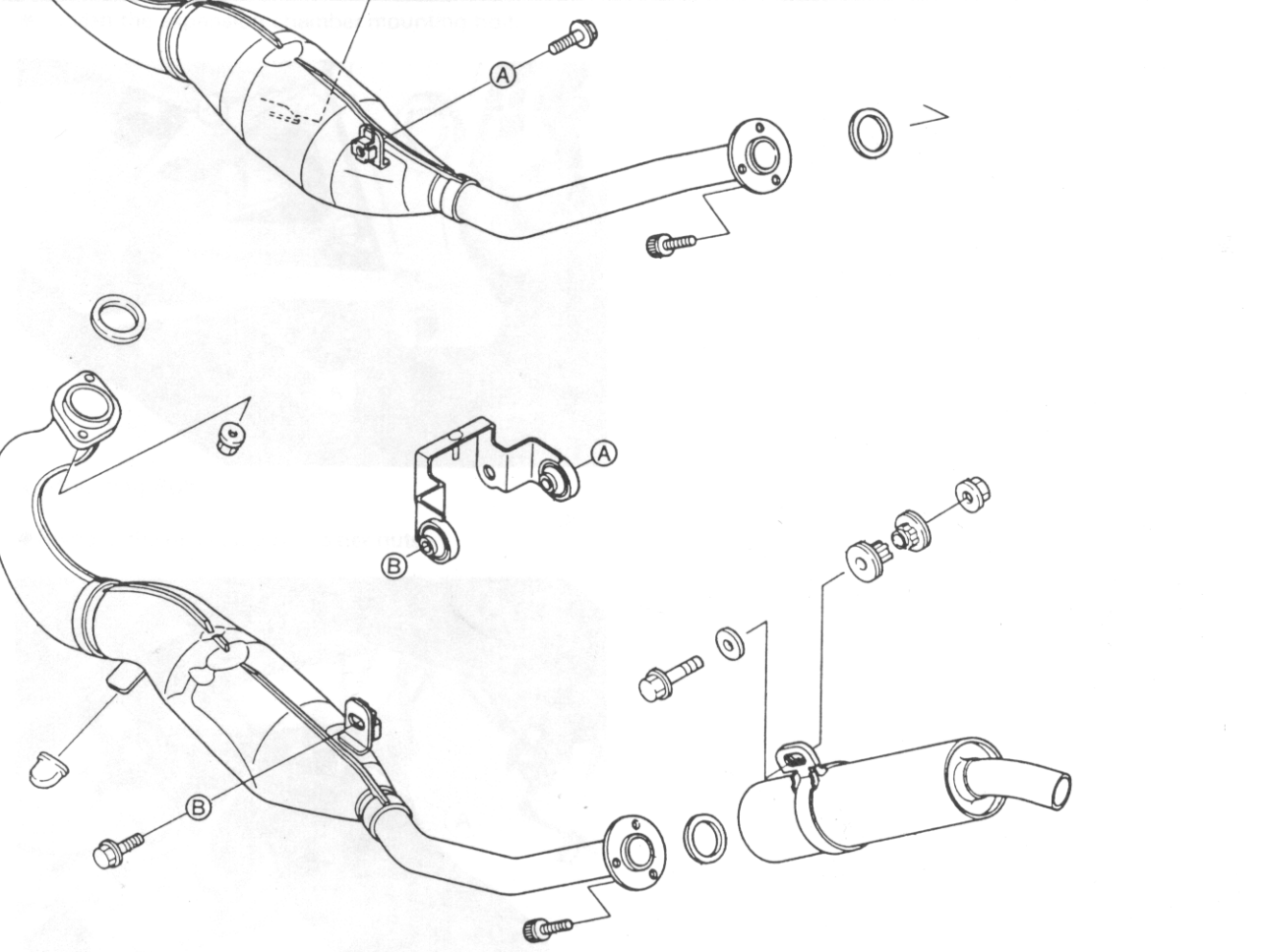
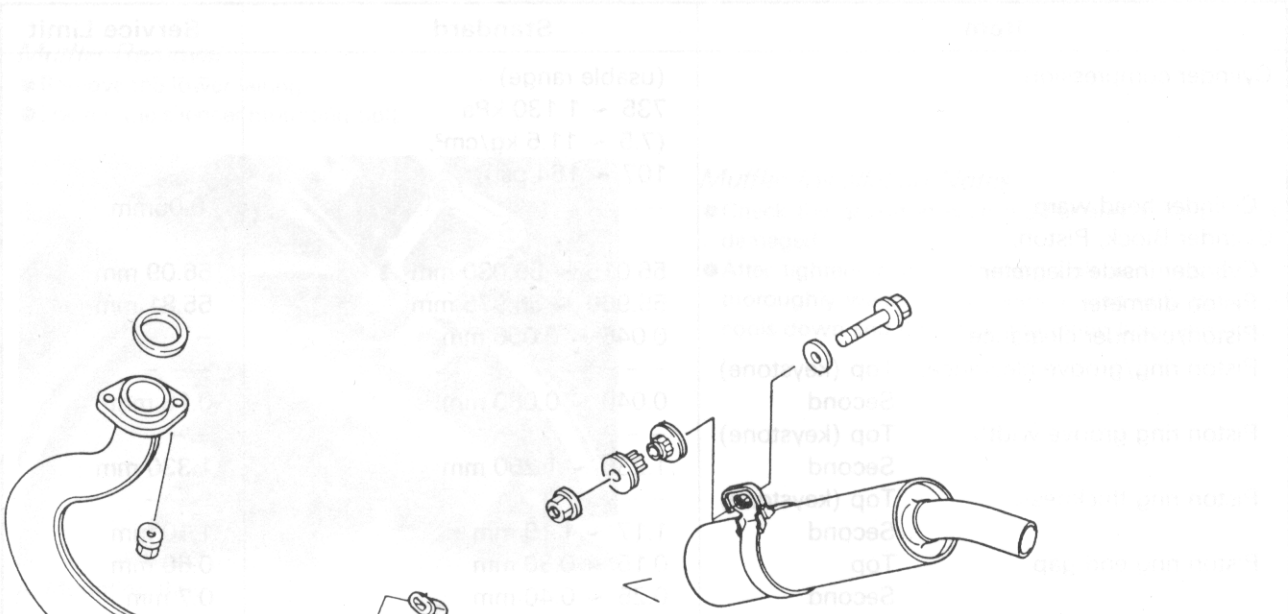
\* : Refer to Base Manual

## 4-2 ENGINE TOP END

### Exploded View



- L** : Apply non-permanent locking agent.  
**M** : Apply molybdenum disulfide grease.  
**O** : Apply engine oil.  
**T1**: 25 N-m (2.5 kg-m, 19.0 ft-lb)  
**T2**: 22 N-m (2.2 kg-m, 16.0 ft-lb)  
**T3**: 9.8 N-m (1.0 kg-m, 87 in-lb)  
**T4**: 2.9 N-m (0.3 kg-m, 26 in-lb)



## 4-4 ENGINE TOP END

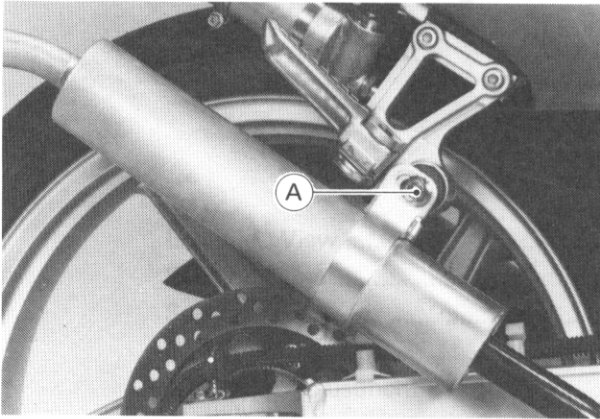
### Specifications

Item	Standard	Service Limit
Cylinder compression	(usable range) 735 ~ 1 130 kPa (7.5 ~ 11.5 kg/cm <sup>2</sup> , 107 ~ 164 psi)	---
Cylinder head warp	---	0.05mm
Cylinder Block, Piston:		
Cylinder inside diameter	56.015 ~ 56.030 mm	56.09 mm
Piston diameter	55.960 ~ 55.975 mm	55.81 mm
Piston/cylinder clearance	0.046 ~ 0.056 mm	---
Piston ring/groove clearance:		
Top (keystone)	---	---
Second	0.040 ~ 0.080 mm	0.18 mm
Piston ring groove width:		
Top (keystone)	---	---
Second	1.230 ~ 1.250 mm	1.330 mm
Piston ring thickness:		
Top (keystone)	---	---
Second	1.17 ~ 1.19 mm	1.10 mm
Piston ring end gap		
Top	0.15 ~ 0.30 mm	0.60 mm
Second	0.25 ~ 0.40 mm	0.7 mm

## Muffler (Expansion Chamber and Silencer)

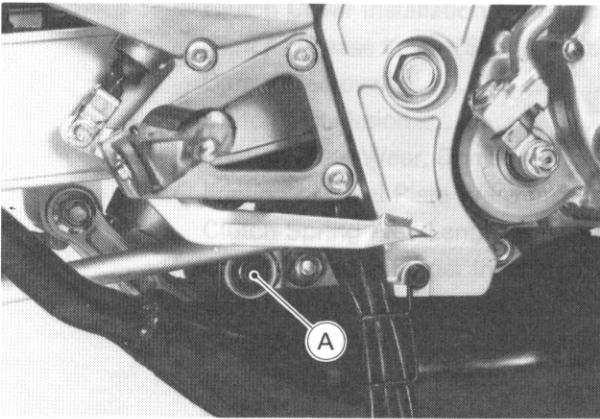
### Muffler Removal

- Remove the lower fairing.
- Loosen the silencer mounting bolt.



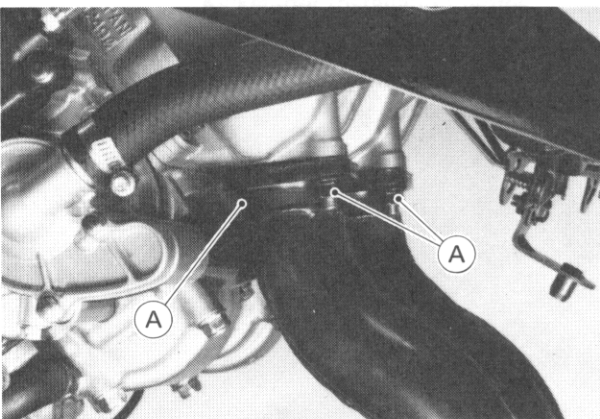
A. Mounting Bolt

- Loosen the expansion chamber mounting bolt.



A. Mounting Bolt

- Remove the exhaust pipe holder nuts.



A. Nuts

- Unscrew the expansion chamber mounting bolt and silencer mounting bolt, and remove the muffler.
- Remove the exhaust gasket.

### Muffler Installation Notes

- Check the gasket at each muffler and replace it if it is damaged.
- After tightening the mounting bolt and nuts securely, thoroughly warm up the engine, wait until the engine cools down and tighten all mounting bolts and nuts.



# Engine Right Side

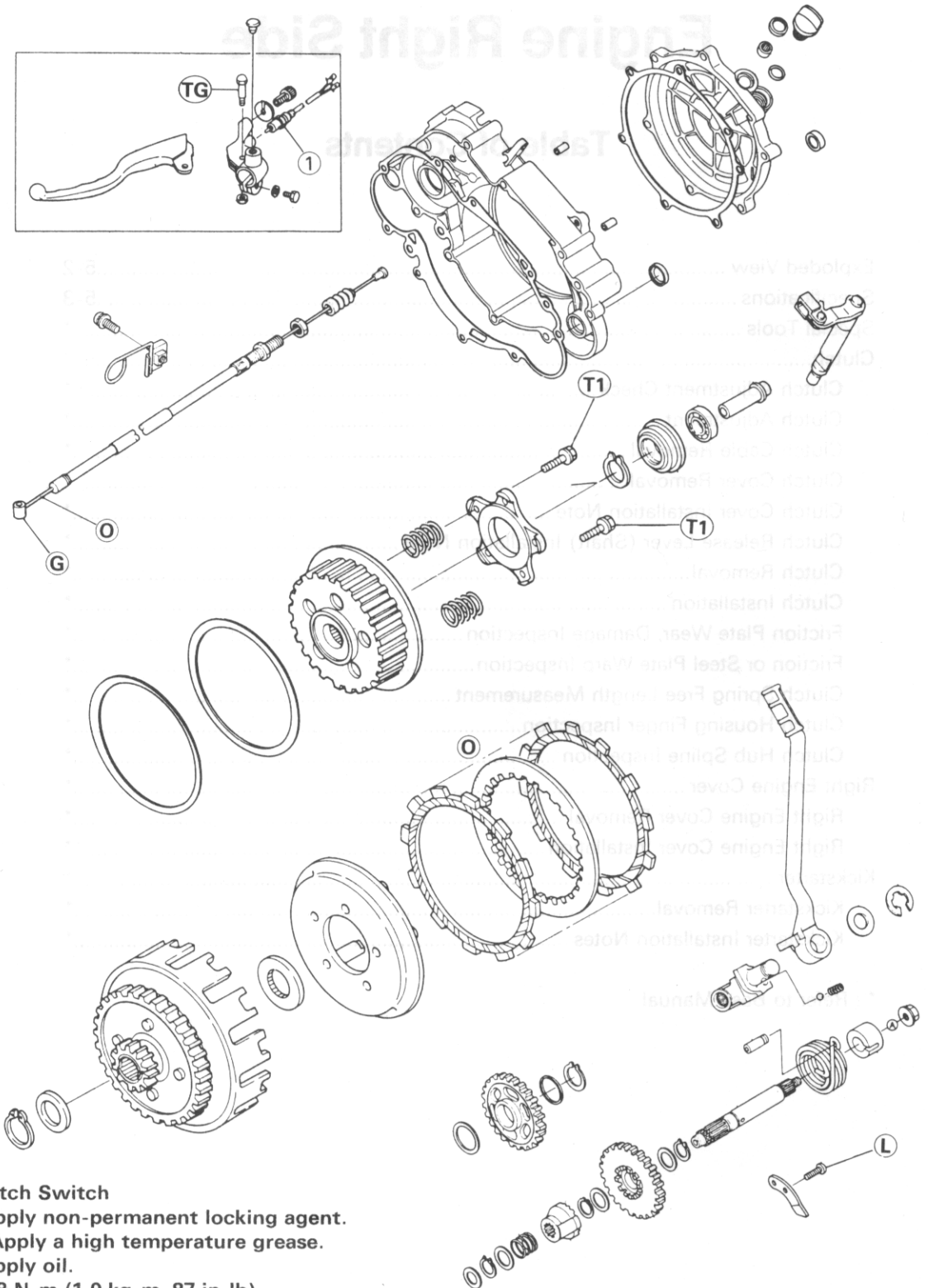
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\* : Refer to Base Manual

## 5-2 ENGINE RIGHT SIDE

### Exploded View



#### 1. Clutch Switch

L : Apply non-permanent locking agent.

TG : Apply a high temperature grease.

O : Apply oil.

T1: 9.8 N-m (1.0 kg-m, 87 in-lb)

---

**Specifications**


---

Item	Standard	Service Limit
<b>Clutch:</b>		
Clutch lever free play	2 ~ 3 mm	---
Clutch spring free length	35.34 mm	34.2 mm
Friction plate thickness	2.9 ~ 3.1 mm	2.7 mm
Friction and steel plate warp	Not more than 0.2 mm	0.3 mm

# Engine Lubrication System

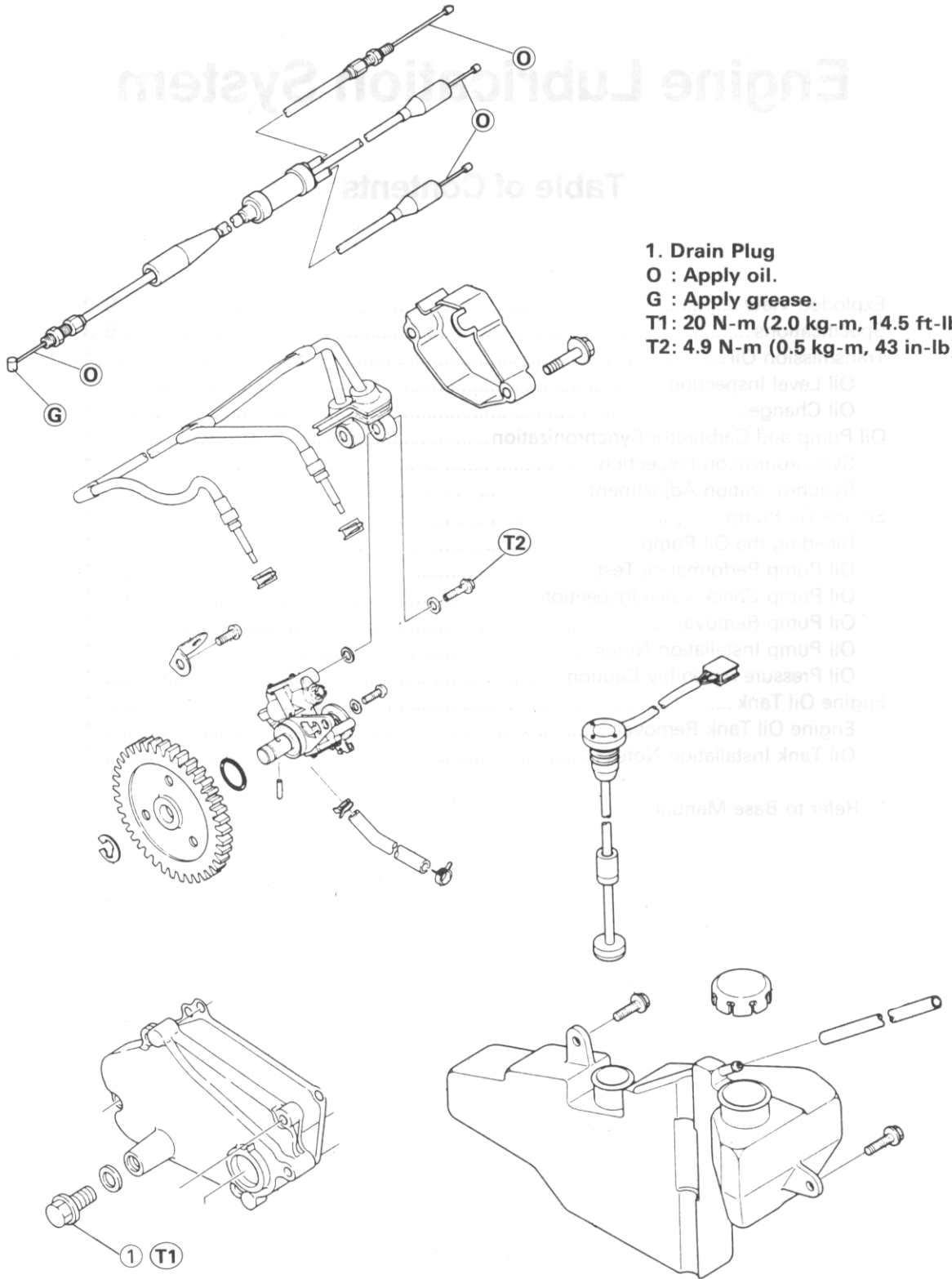
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\* : Refer to Base Manual

# 6-2 ENGINE LUBRICATION SYSTEM

## Exploded View



- 1. Drain Plug
- O : Apply oil.
- G : Apply grease.
- T1: 20 N-m (2.0 kg-m, 14.5 ft-lb)
- T2: 4.9 N-m (0.5 kg-m, 43 in-lb)

---

**Specifications**


---

Item	Standard	Service Limit
<b>Engine Lubrication System:</b> Transmission oil: Grade Viscosity Amount Engine oil pump: Oil pump output @2 000 r/min (rpm), 3 min.	SE class SAE 10W30 or 10W40 0.85 L 3.6 ~ 4.2 mL (per one outlet)	---

# Engine Removal / Installation

## Table of Contents

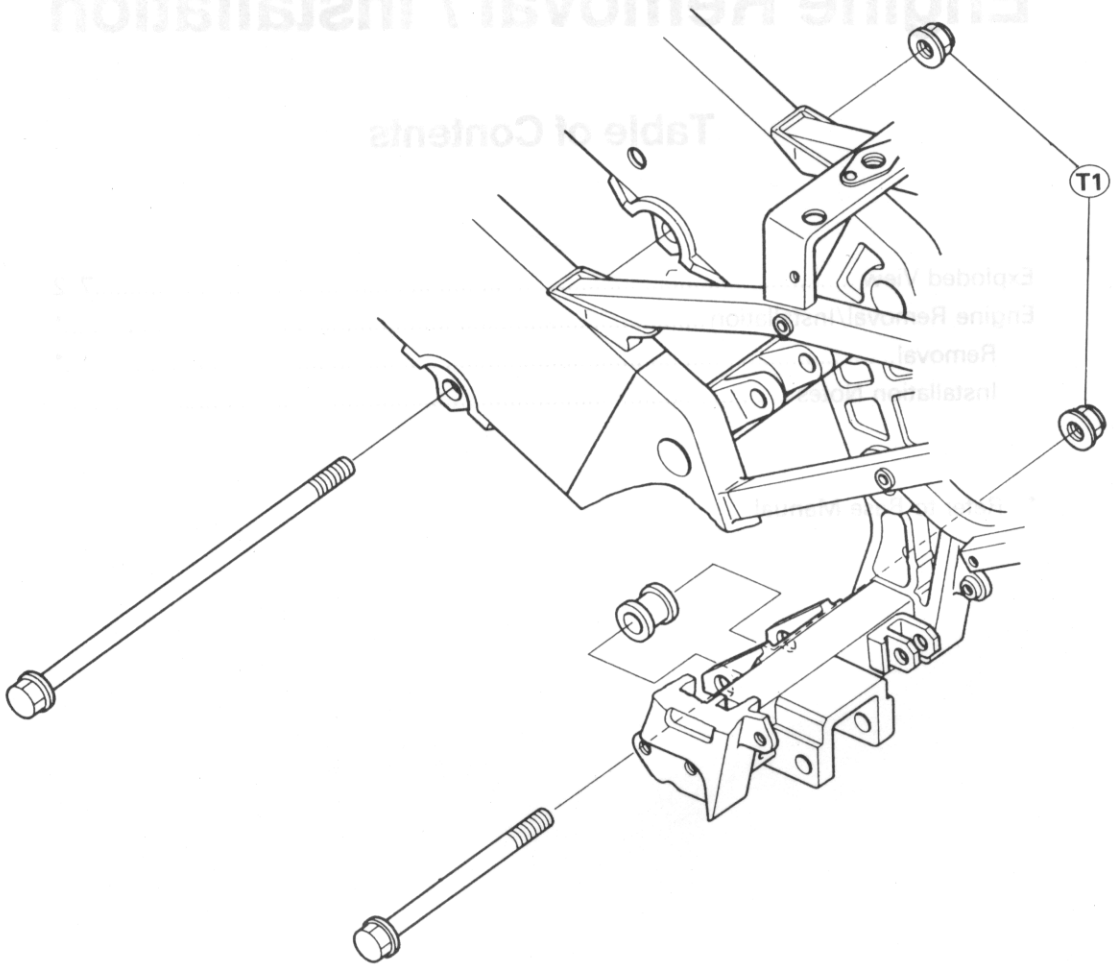
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\* : Refer to Base Manual



## 7-2 ENGINE REMOVAL / INSTALLATION

### Exploded View



T1 : 49 N-m (5.0 kg-m, 36 ft-lb)



# Crankshaft / Transmission

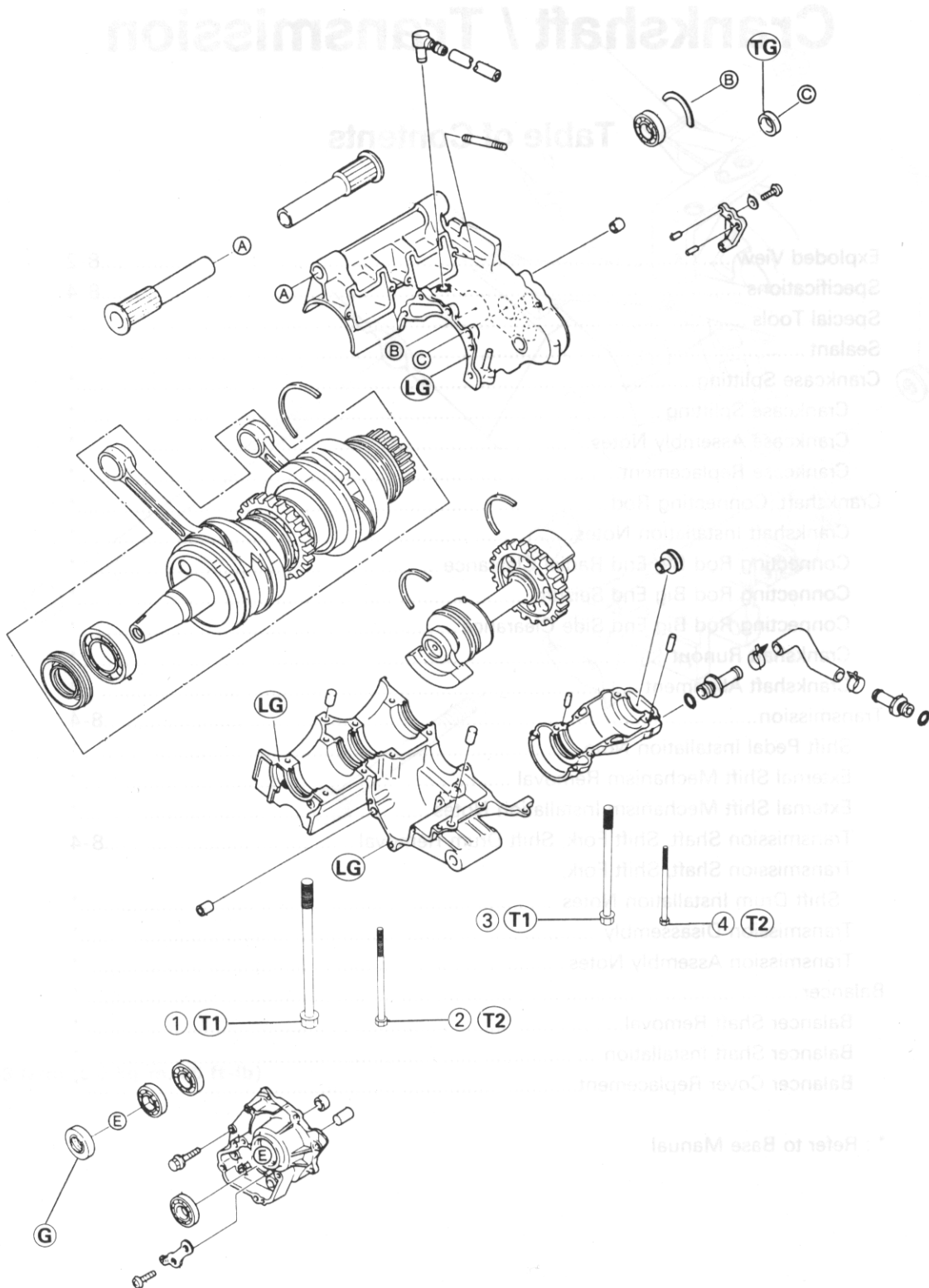
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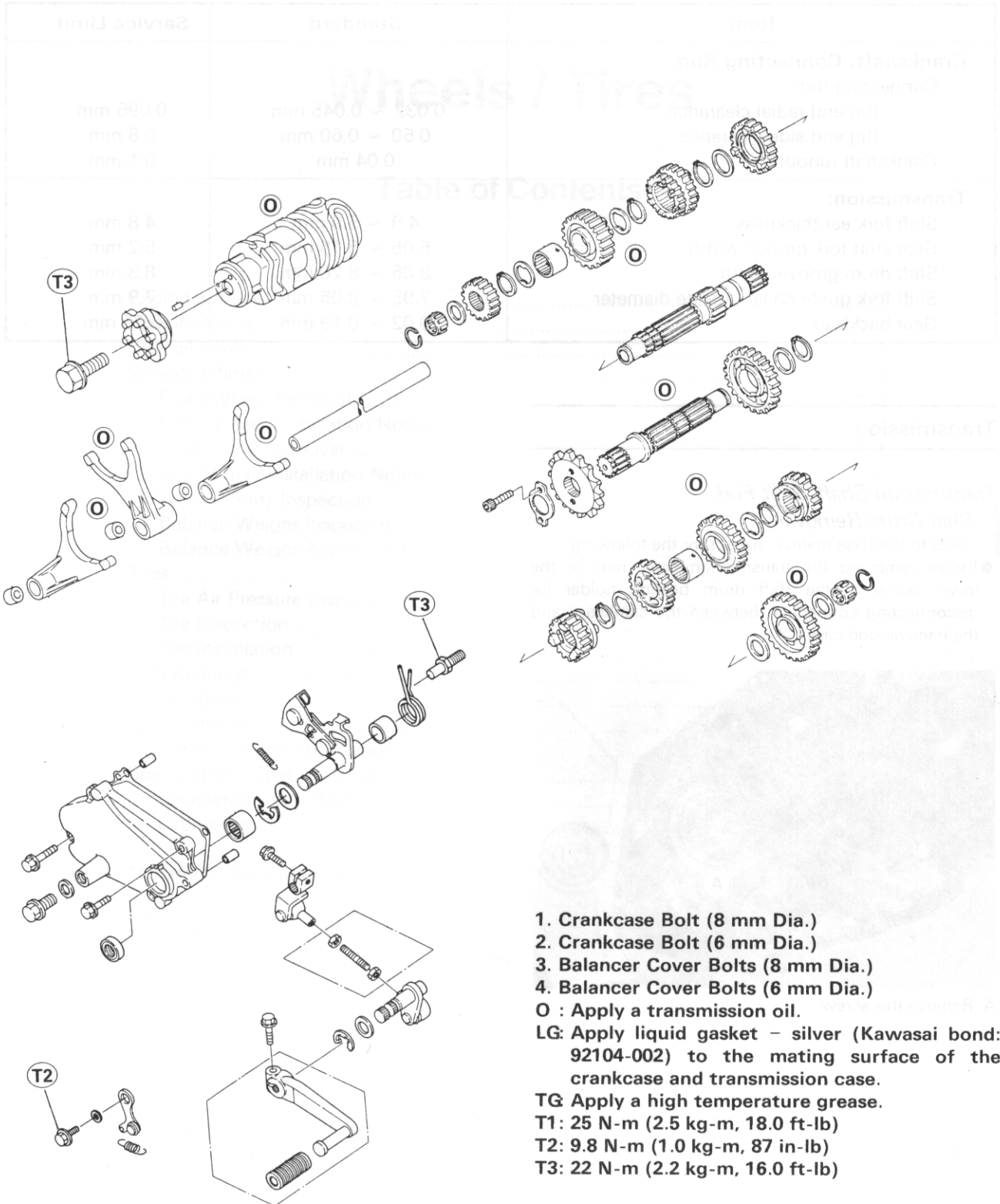
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\* : Refer to Base Manual

# 8-2 CRANKSHAFT / TRANSMISSION

## Exploded View





- 1. Crankcase Bolt (8 mm Dia.)
- 2. Crankcase Bolt (6 mm Dia.)
- 3. Balancer Cover Bolts (8 mm Dia.)
- 4. Balancer Cover Bolts (6 mm Dia.)
- O : Apply a transmission oil.
- LG: Apply liquid gasket – silver (Kawasaki bond: 92104-002) to the mating surface of the crankcase and transmission case.
- TG Apply a high temperature grease.
- T1: 25 N-m (2.5 kg-m, 18.0 ft-lb)
- T2: 9.8 N-m (1.0 kg-m, 87 in-lb)
- T3: 22 N-m (2.2 kg-m, 16.0 ft-lb)

## 8-4 CRANKSHAFT / TRANSMISSION

### Specifications

Item	Standard	Service Limit
<b>Crankshaft, Connecting Rod:</b>		
Connecting rod:		
Big end radial clearance	0.032 ~ 0.045 mm	0.095 mm
Big end side clearance	0.50 ~ 0.60 mm	0.8 mm
Crankshaft runout:	0.04 mm	0.1 mm
<b>Transmission:</b>		
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 drum groove width	8.05 ~ 8.20 mm	8.3 mm
Shift fork guide collar outside diameter	7.95 ~ 8.05 mm	7.9 mm
Gear backlash	0.02 ~ 0.19 mm	0.25 mm

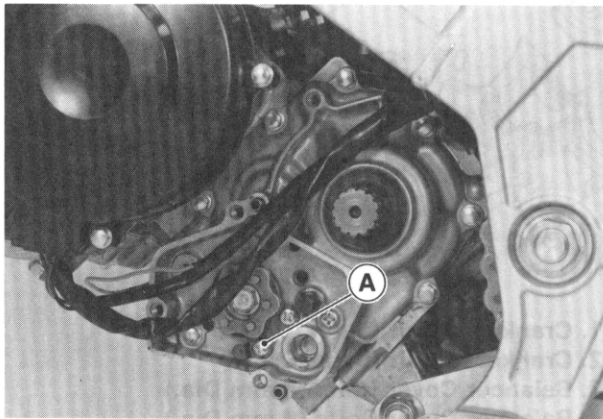
### Transmission

#### Transmission Shaft, Shift Fork,

##### Shift Drum Removal

Refer to the base manual, except for the following.

- Before removing the transmission case, remove the lower screw of the shift drum bearing holder for disconnecting connection between the crankcase and the transmission case.



A. Remove this screw.

# Wheels / Tires

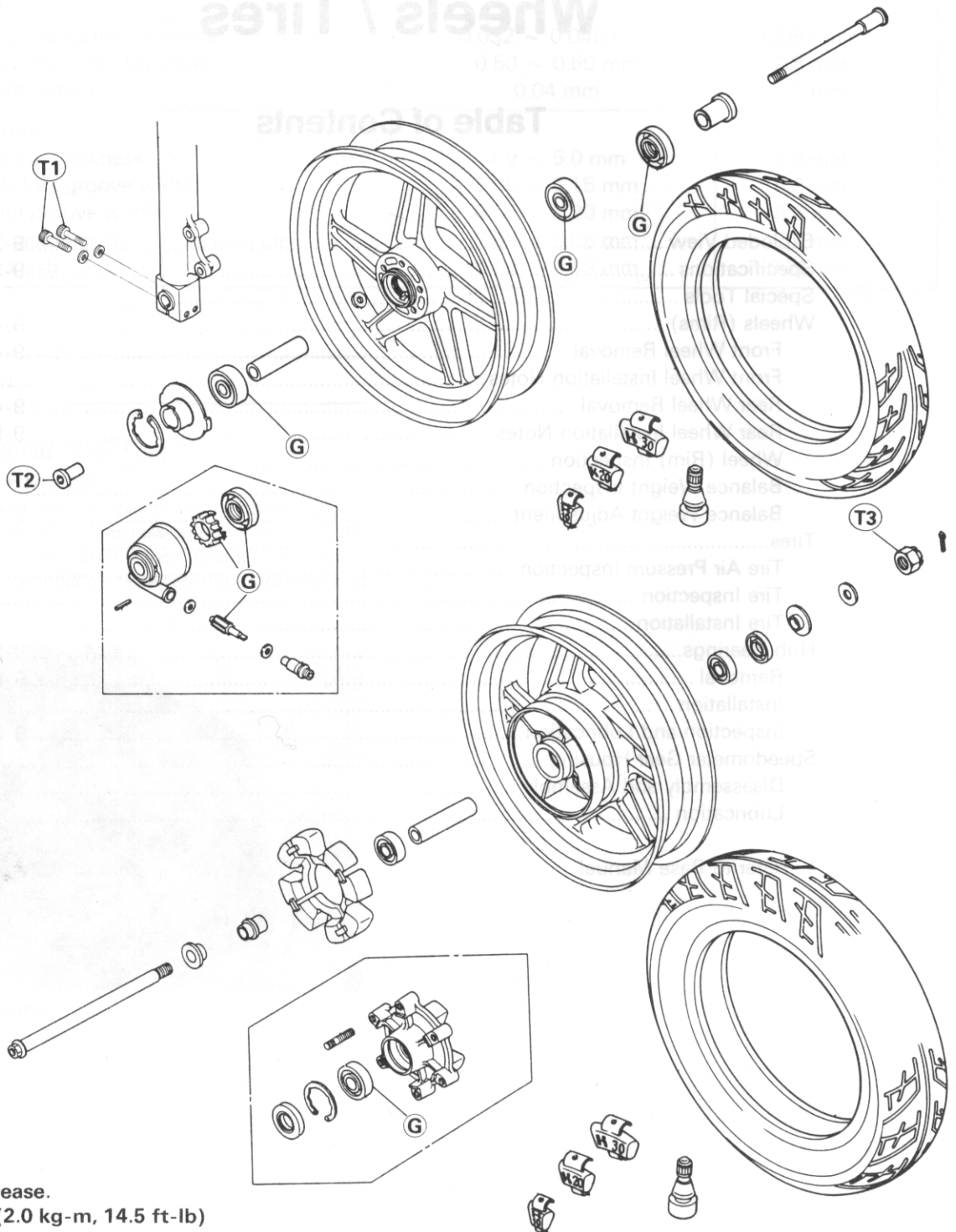
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\* : Refer to Base Manual

## 9-2 WHEELS / TIRES

### Exploded View



G : Apply grease.

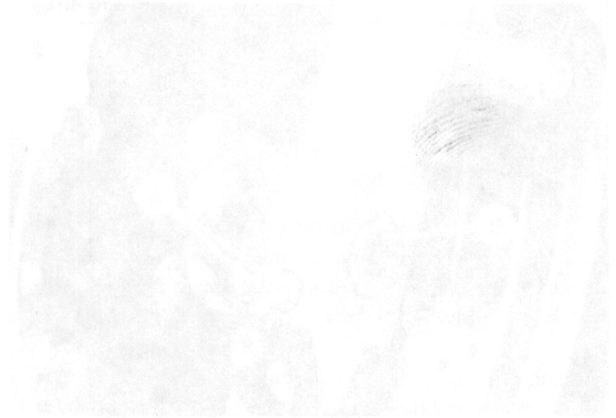
T1 : 20 N·m (2.0 kg·m, 14.5 ft·lb)

T2 : 110 N·m (11.0 kg·m, 80 ft·lb)

T3 : 88 N·m (9.0 kg·m, 65 ft·lb)

Specifications

Item	Standard	Service Limit
<b>Wheels:</b>		
Rim runout (with tire installed):		
Axial	---	0.5 mm
Radial	---	0.8 mm
Axle runout/100 mm	Under 0.05 mm	0.2 mm
<b>Tires:</b>		
Air pressure (when cold):		
Front	225 kPa (2.25 kg/cm <sup>2</sup> , 32 psi)	---
Rear	250 kPa (2.5 kg/cm <sup>2</sup> , 36 psi)	---
Tread Depth:		
Front	3.9 mm	1 mm
Rear	6.4 mm	2 mm: Up to 110 km/h (70 mph) 3 mm: Over 110 km/h (70 mph)
<b>Standard Tire:</b>		
Front	Size 110/70 VR17	---
	Make DUNLOP	---
	Type K510F Tubeless	---
Rear	Size 140/60 VR18	---
	Make DUNLOP	---
	Type K510 Tubeless	---



## 9-4 WHEELS / TIRES

### Wheels (Rims)

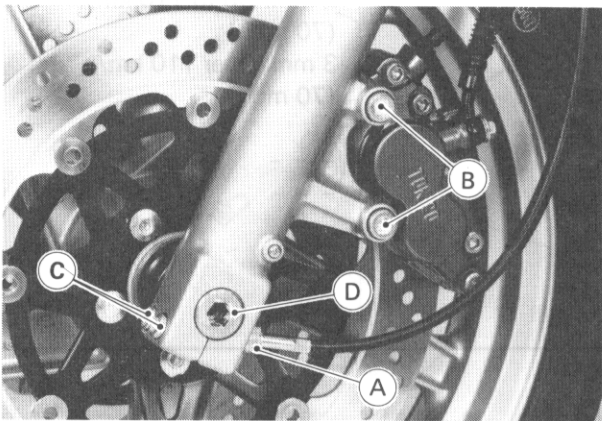
#### Front Wheel Removal

- Remove the following.
  - Speedometer Cable Lower End
  - RH or LH Brake Caliper Mounting Bolts

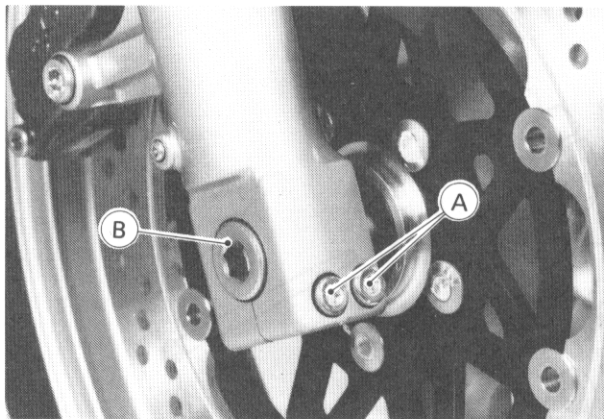
#### NOTE

- Rest the caliper on some kind of stand so that it doesn't dangle.

Axle Clamp Bolts (Loosen)  
Axle Nut



A. Speedometer Cable Lower End    C. Axle Clamp Bolts  
B. Caliper Mounting Bolts        D. Axle Nut

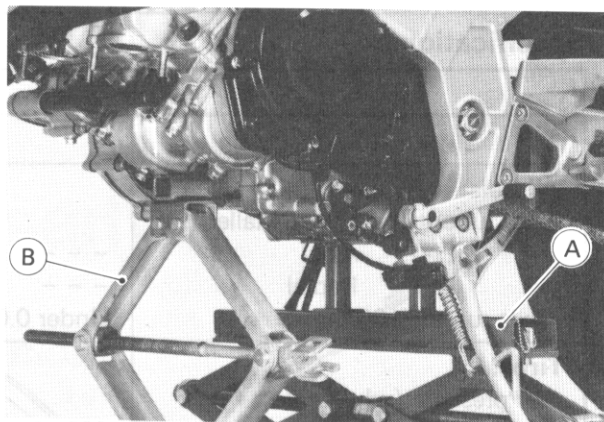


A. Axle Clamp Bolts        B. Axle

Lower Fairing

Muffler (see Engine Top End chapter)

- Using the jack (special tool) and a stand, raise the front wheel off the ground.



A. Jack: 57001-1238        B. Suitable Jack

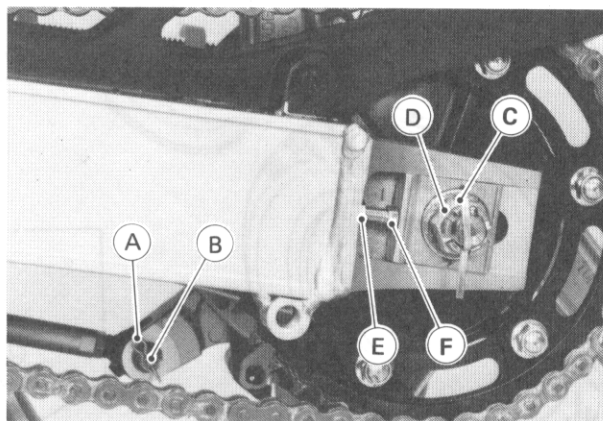
- Pull out the axle, and remove the wheel.

#### 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 discs do not touch the ground.

#### Rear Wheel Removal

- Remove the following.
  - Clip
  - Torque link Rear End Nut (Loosen)
  - Cotter Pin
  - Rear Axle Nut
  - Chain Adjuster Locknuts (Loosen)
  - Chain Adjusting Bolts (Tighten)



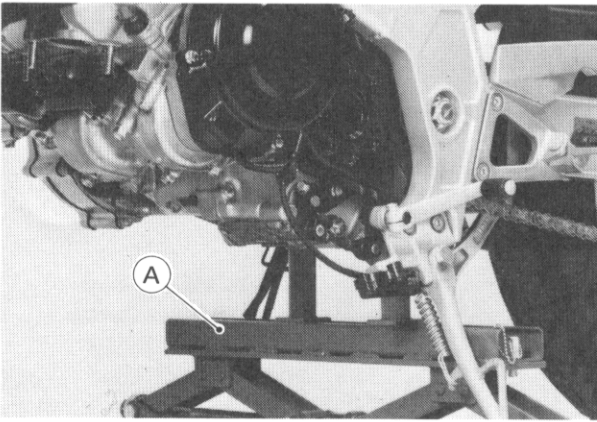
A. Clip  
B. Torque Link Rear End Nut  
C. Cotter Pin  
D. Rear Axle Nut  
E. Chain Adjuster Locknuts  
F. Chain Adjusting Bolts

Lower Fairing

Muffler

- Using the jack (special tool), raise the rear wheel off the ground.





A. Jack: 57001-1238

- Fully loosen the drive chain and pull out the axle.
- Remove the drive chain from the rear sprocket toward the left.
- Pull out the axle.

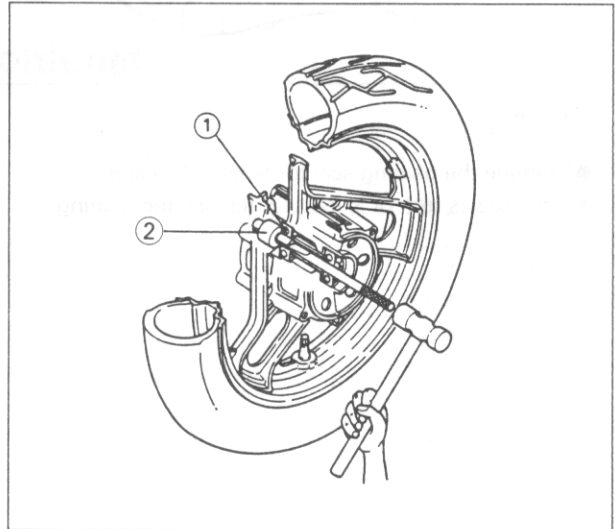
**CAUTION**

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 not touch the ground.

**Hub Bearings**

*Removal*

- Use the bearing remover (special tool) to remove the hub bearing.
- Remove the bearing retainer.



- 1. Hub Bearing
- 2. Bearing Remover Set: 57001-1264

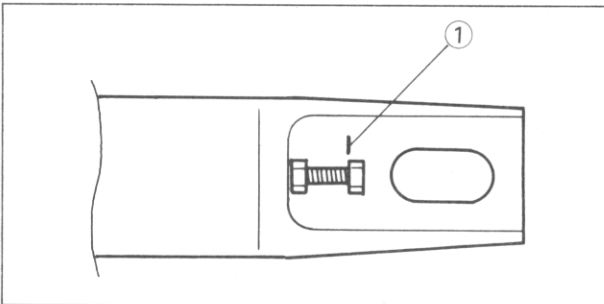
**CAUTION**

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.

*Rear Wheel Installation Notes*

Refer to the base manual, except for the following.

- Before installing the rear wheels, set the adjusting bolt so that the edge of the bolt seating surface aligns with the notch on the swing arm.



- 1. Notch

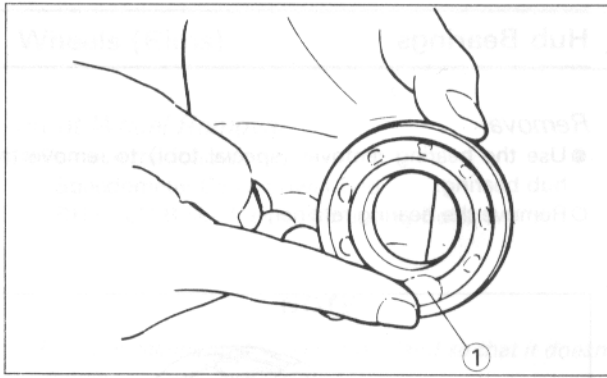
- Replace the cotter pin with a new one.

*Inspection and Lubrication*

Since the wheel bearings are made to extremely close tolerances, the clearance cannot normally be measured.

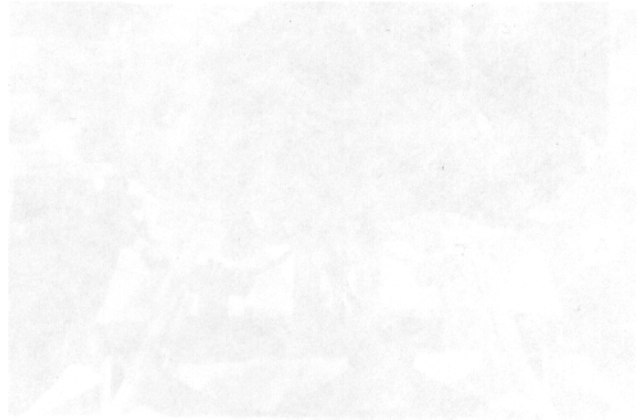
- Turn each bearing back and forth while checking for roughness or binding.
- ★ If roughness or binding is found, replace the bearing.
- Wash the bearing with a high flash point solvent, dry it (do not spin it while it is dry), and oil it. Spin it by hand to check its condition.
- ★ If it is noisy, does not spin smoothly, or has any rough spots, it must be replaced.
- ★ If the bearing is to be used again, rewash it with a quality flash point solvent, dry it and pack it with good bearing grease by hand a few times to make sure the grease is distributed uniformly inside the bearing, and wipe the oil grease out of the hub before bearing installation. Clean and grease the wheel bearings in accordance with the Periodic Maintenance Chart.

## 9-6 WHEELS / TIRES



### 1. Grease

- Examine the bearing seal for tears or leakage.
- ★ If the seal is torn or is leaking, replace the bearing.



Remove the drive chain from the wheel, block the front wheel, and turn the wheel to the left. Fully loosen the drive chain and pull out the drive chain from the wheel. Block the front wheel to the left.

### CAUTION

Do not use the wheel on the ground with the chain facing down. This can damage the seal. Place blocks under the wheel so that the tire does not touch the ground.

### CAUTION

Do not use the wheel on the ground with the chain facing down. This can damage the seal. Place blocks under the wheel so that the tire does not touch the ground.

Remove the drive chain from the wheel, block the front wheel, and turn the wheel to the left. Fully loosen the drive chain and pull out the drive chain from the wheel. Block the front wheel to the left.



Remove the cover on the wheel with a screwdriver. Examine the bearing seal for tears or leakage. If the seal is torn or is leaking, replace the bearing.

# Final Drive

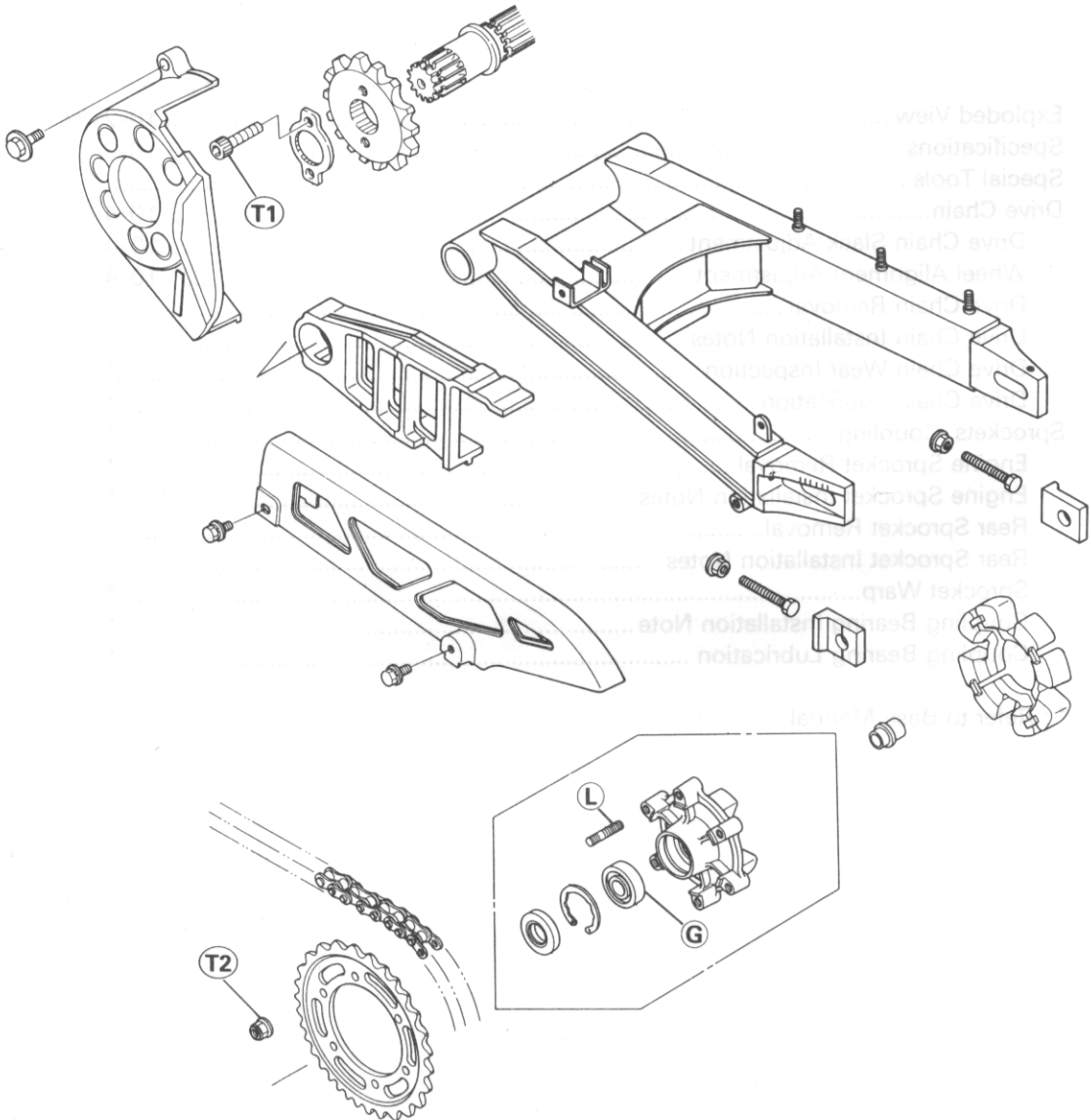
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\* : Refer to Base Manual

# 10-2 FINAL DRIVE

## Exploded View



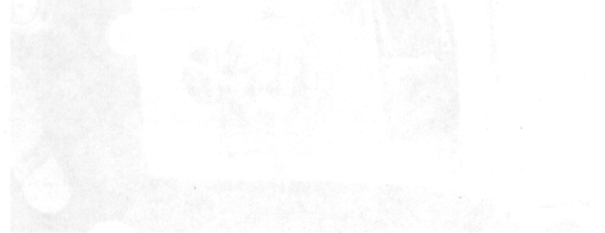
**L : Apply non-permanent locking agent.**

**T1 : 9.8 N-m (1.0 kg-m, 87 in-lb)**

**T2 : 59 N-m (6.0 kg-m, 43 ft-lb)**

**Specifications**

Item	Standard	Service Limit
<b>Drive Chain:</b>		
Chain slack	39 ~ 40 mm	Less than 30 mm, or more than 45 mm
Chain 20-link length Standard chain	317.5 ~ 318.4 mm	323 mm
Make	DAIDO	---
Type	DID520V2	---
Link	Endless, 108 Link	---



Adjusting the chain slack. The chain should be adjusted so that it is tight enough to prevent slipping but loose enough to allow for normal expansion and contraction.

The chain slack should be checked and adjusted at regular intervals. To adjust the chain slack, first loosen the adjusting bolts on the rear sprocket carrier. Then, pull the chain away from the sprocket teeth to create the desired slack. Once the slack is set, tighten the adjusting bolts and recheck the slack. The chain should be lubricated regularly to reduce wear and extend its life.

When adjusting the chain slack, it is important to ensure that the chain is properly seated on the sprocket teeth. The chain should be adjusted so that it is tight enough to prevent slipping but loose enough to allow for normal expansion and contraction.



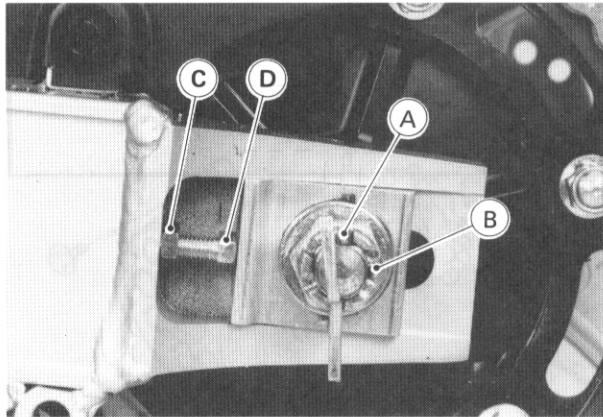
Adjusting the chain slack. The chain should be adjusted so that it is tight enough to prevent slipping but loose enough to allow for normal expansion and contraction.

## Drive Chain

### *Drive Chain Slack Adjustment*

Refer to the base manual, except for the following.

- Pull out the cotter pin, and loosen the axle nut.
- Loosen the left and right chain adjuster locknuts.



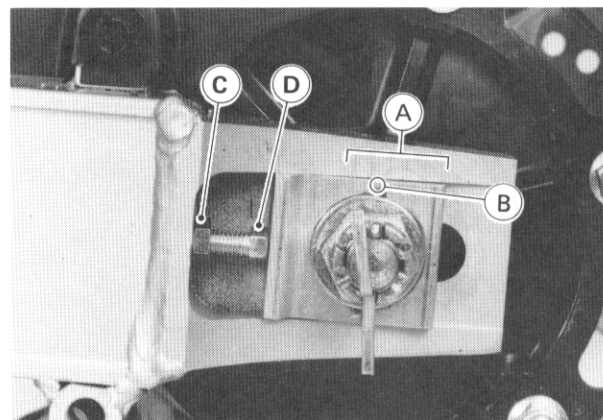
A. Cotter Pin  
B. Rear Axle Nut  
C. Chain Adjuster Locknut  
D. Chain Adjusting Bolt

- Turn in or out both chain adjusting bolts evenly, adjust the chain so that the chain slack will be within the standard value.
- Tighten the axle nut to the specified torque (see Wheels/Tires chapter).
- Insert a new cotter pin through the axle nut and axle and spread its ends.

### *Wheel Alignment Adjustment*

Refer to the base manual, except for the following.

- Remove the cotter pin from the rear axle and loosen the rear axle nut and chain adjuster locknut.



A. Marks  
B. Notch  
C. Chain Adjust Locknut  
D. Chain Adjusting Nut

- Tighten the axle nut to the specified torque (see Wheels/Tires chapter).
- Insert a new cotter pin through the axle and nut, and spread its ends.

# Brakes

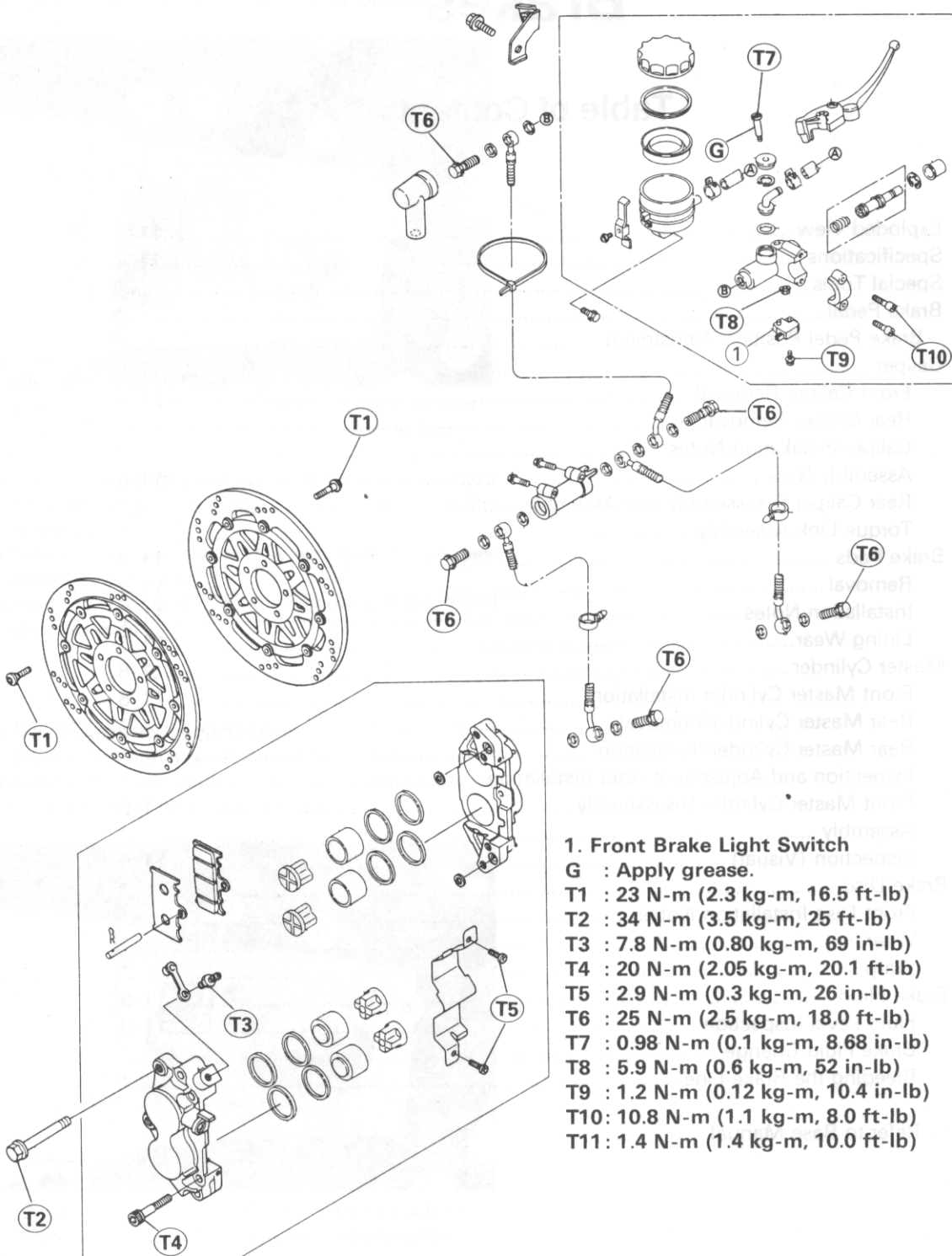
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\* : Refer to Base Manual

# 11-2 BRAKES

## Exploded View



### 1. Front Brake Light Switch

G : Apply grease.

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

T2 : 34 N-m (3.5 kg-m, 25 ft-lb)

T3 : 7.8 N-m (0.80 kg-m, 69 in-lb)

T4 : 20 N-m (2.05 kg-m, 20.1 ft-lb)

T5 : 2.9 N-m (0.3 kg-m, 26 in-lb)

T6 : 25 N-m (2.5 kg-m, 18.0 ft-lb)

T7 : 0.98 N-m (0.1 kg-m, 8.68 in-lb)

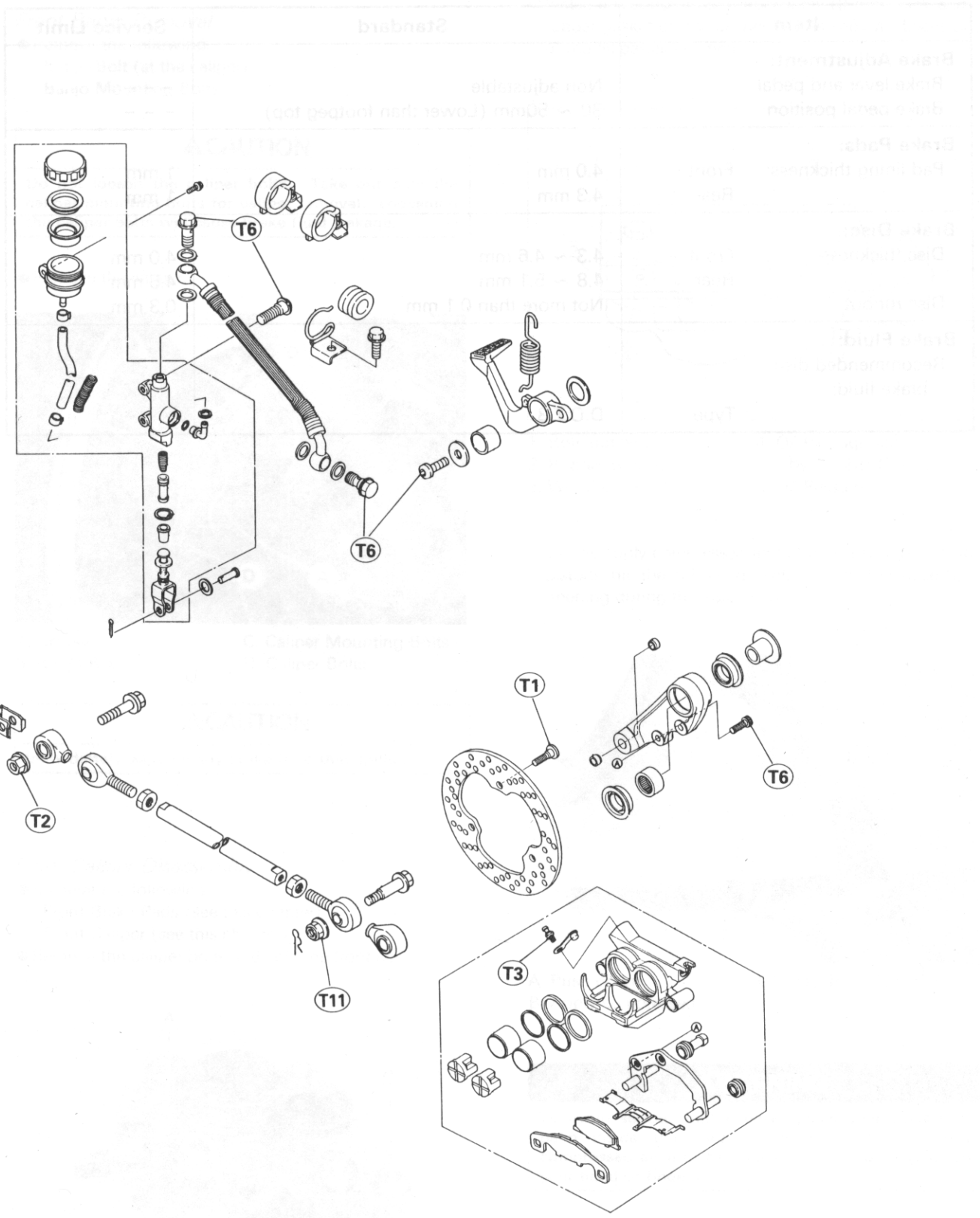
T8 : 5.9 N-m (0.6 kg-m, 52 in-lb)

T9 : 1.2 N-m (0.12 kg-m, 10.4 in-lb)

T10 : 10.8 N-m (1.1 kg-m, 8.0 ft-lb)

T11 : 1.4 N-m (1.4 kg-m, 10.0 ft-lb)





## 11-4 BRAKES

### Specifications

Item	Standard	Service Limit	
<b>Brake Adjustment:</b> Brake lever and pedal Brake pedal position	Non adjustable 30 ~ 50mm (Lower than footpeg top)	--- ---	
<b>Brake Pads:</b> Pad lining thickness:	Front Rear	4.0 mm 4.3 mm	1 mm 1 mm
<b>Brake Disc:</b> Disc thickness:	Front Rear	4.3 ~ 4.6 mm 4.8 ~ 5.1 mm	4.0 mm 4.5 mm
Disc runout	Not more than 0.1 mm	0.3 mm	
<b>Brake Fluid:</b> Recommended disc brake fluid:	Type	D.O.T.3	---

**Banjos**

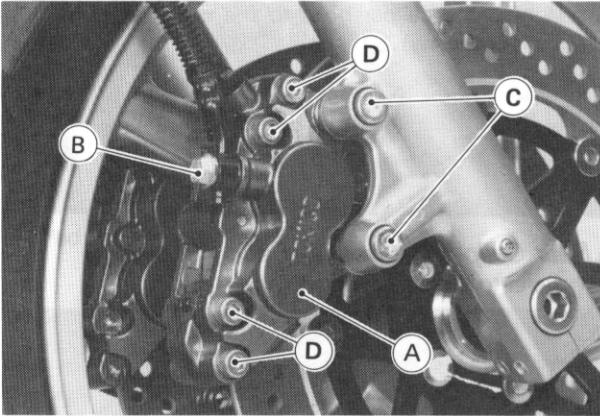
*Front Banjo Removal*

- Remove the following.
  - Banjo Bolt (at the caliper)
  - Banjo Mounting Bolts

**⚠ CAUTION**

Do not loosen the caliper bolts. Take out only the caliper mounting bolts for caliper removal. Loosening the caliper bolts will cause brake fluid leakage.

- Remove the caliper.



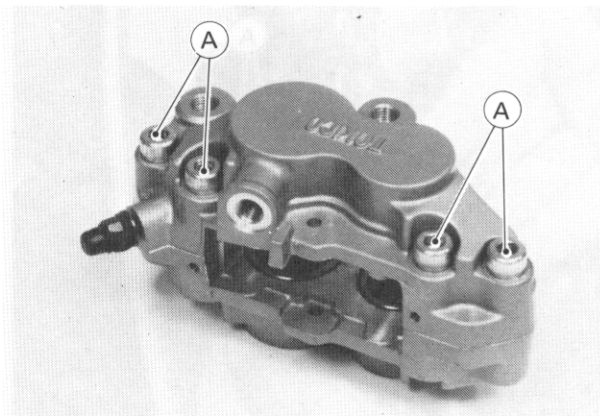
A. Caliper  
B. Banjo Bolt  
C. Caliper Mounting Bolts  
D. Caliper Bolts

**⚠ CAUTION**

Immediately wipe up any brake fluid that spills.

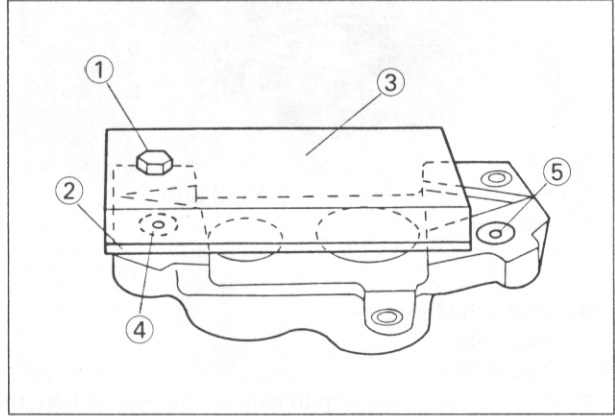
*Front Caliper Disassembly*

- Remove the following.
  - Front Brake Pads (see this chapter)
  - Front Caliper (see this chapter)
- Remove the caliper bolts and split the front caliper.



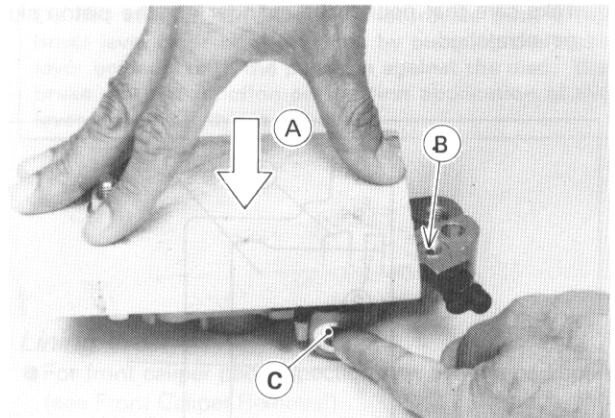
A. Caliper Bolts

- Remove the piston insulator and the O-rings.
- Using compressed air, remove the pistons. One way to remove the pistons is as follows.
- Install a wooden board more than 10 mm thick and a rubber gasket on the caliper half as shown. Leave one of the oil passages open.



1. Bolt and Nut  
2. Rubber Gasket  
3. Wooden Board  
4. Oil Passage sealed by Rubber Gasket  
5. Oil Passage

- Lightly apply compressed air to the oil passage until the pistons hit the rubber gasket. Block the hose joint opening during this operation.



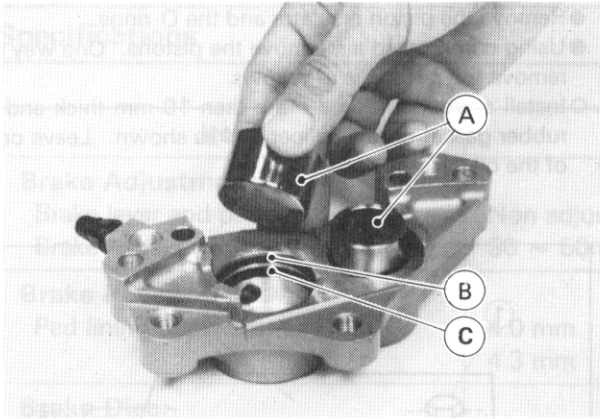
A. Push down  
B. Apply compressed air.  
C. Hose Joint Opening

**⚠ 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.

- Pull out the pistons by hand.

# 11-6 BRAKES

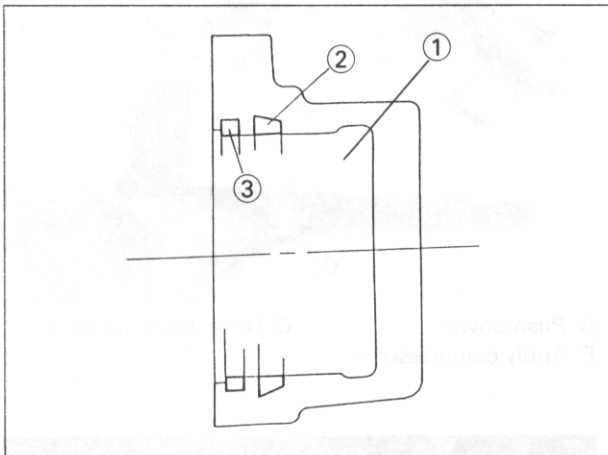


A. Piston  
B. Dust Seal  
C. Fluid Seal

- Remove the following.  
Dust Seals  
Fluid Seals
- Repeat the previous step to remove the pistons from the other side of the caliper body.

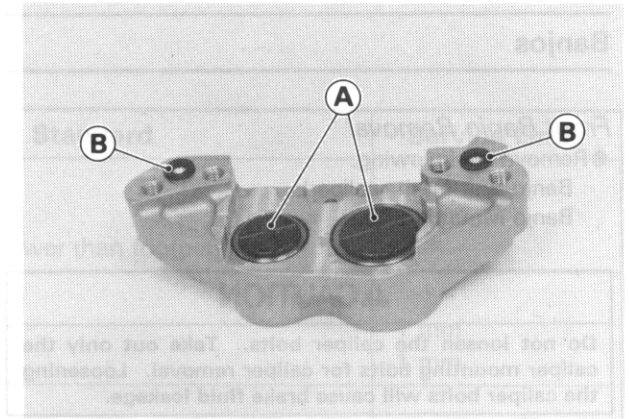
### Assembly Notes

- Apply brake fluid to the cylinders, pistons, and fluid seals, and push the pistons into the cylinders by hand. Take care that neither the cylinder nor the piston skirt get scratched.



1. Piston  
2. Fluid Seal  
3. Dust Seal

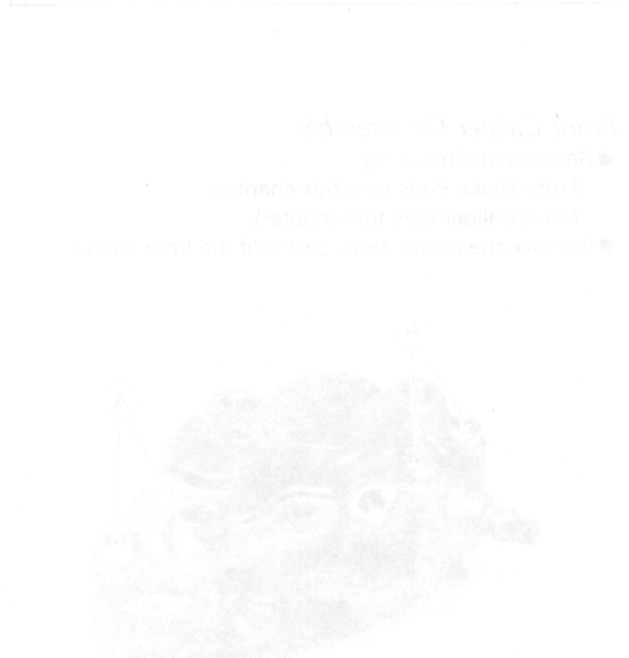
- Be sure to install the following.



A. Piston Insulators  
B. O-Rings

- Tighten the caliper bolts to the specified torque (see Exploded View).

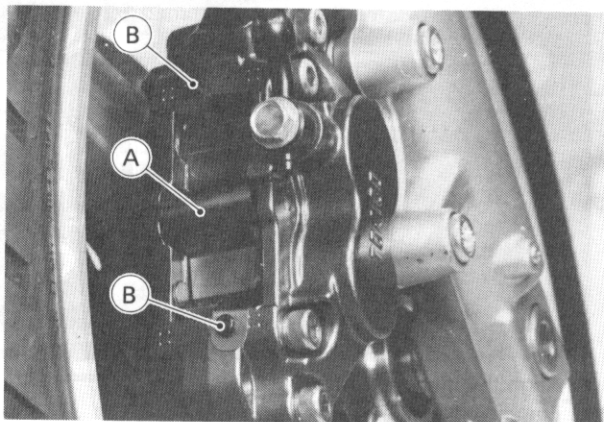
**Rear Caliper Disassembly and Assembly**  
Refer to the base manual.



## Brake Pads

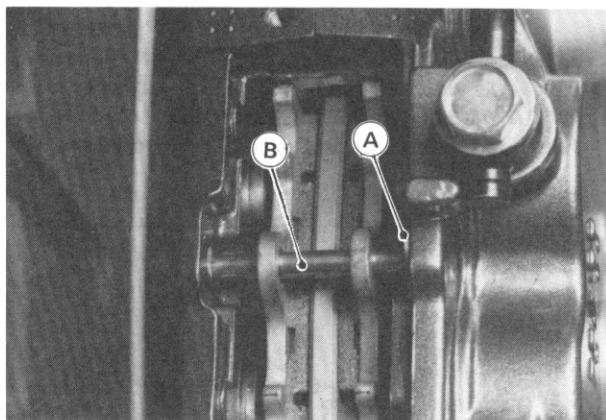
### Front Brake Pad Removal

- Remove the following.
  - Pad Spring
  - Clip
  - Pad Pin



A. Pad Spring

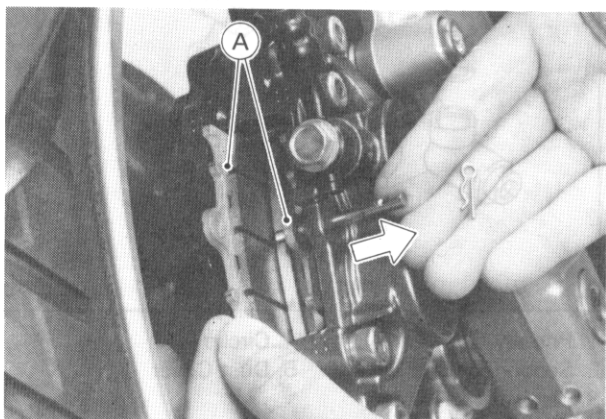
B. Screws



A. Clip

B. Pad Pin

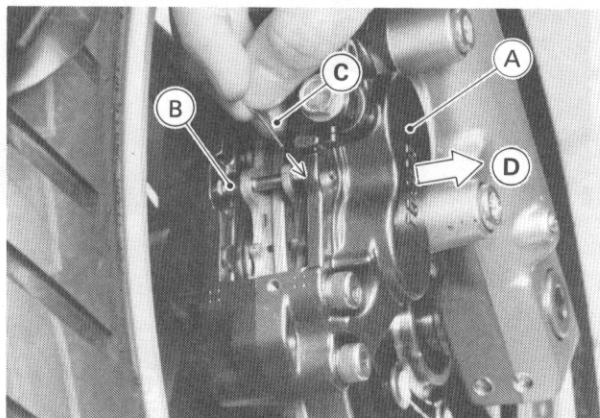
- Remove the brake pads.



A. Pads

### Installation Notes

- Push the caliper pistons in by hand as far as they will go.
- Install the pad pin(s) and clip(s) as shown. The clip(s) must be "outside" of the pads.



A. Front Caliper

B. Pad Pin

C. Clip

D. Outside

- For the rear caliper, install the springs, pad pins, and clips on the original position shown (see Rear Caliper Pad Removal).

### ⚠ WARNING

Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever or pedal until the pads are against the disc. The brake will not function on the first application of the lever or pedal if this is not done.

### Lining Wear

- For front caliper pad inspection, remove the pad spring (see Front Caliper Removal).
- For rear caliper pad inspection, remove the rear caliper (see this chapter).
- Remove the pad cover.
- ★ If the lining thickness of either pad is less than the service limit, replace both pads in the caliper as a set.

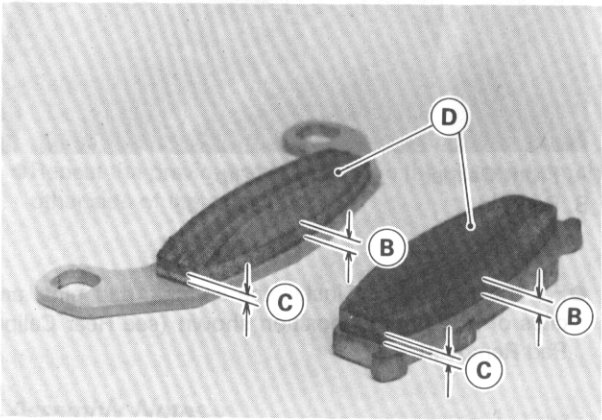
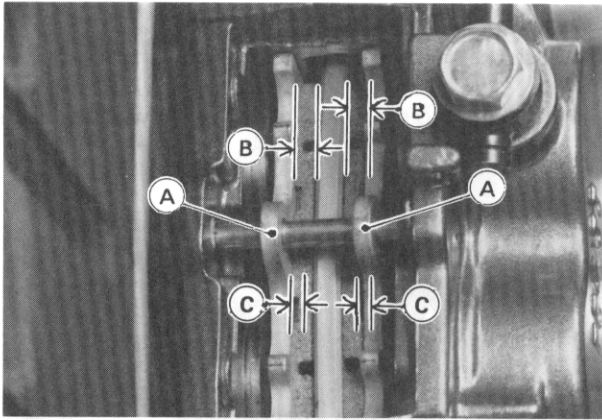
### Pad Lining Thickness

#### Front

Standard: 4 mm  
Service Limit: 1 mm

#### Rear

Standard: 4.3 mm  
Service Limit: 1 mm



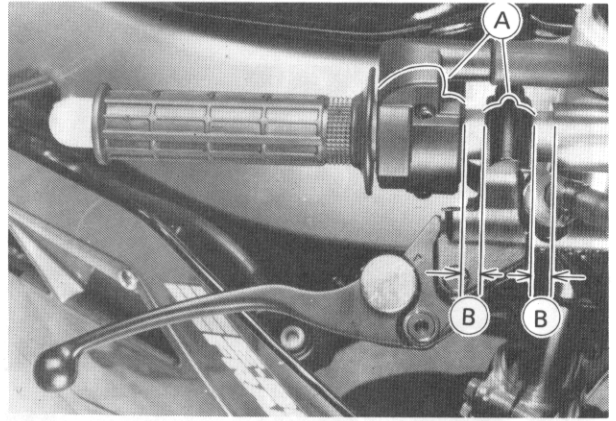
A. Front Caliper Pad  
 B. Lining Thickness  
 C. Service Limit  
 D. Rear Caliper Pad

## Master Cylinders

### Front Master Cylinder Installation

Refer to the base manual except for the following.

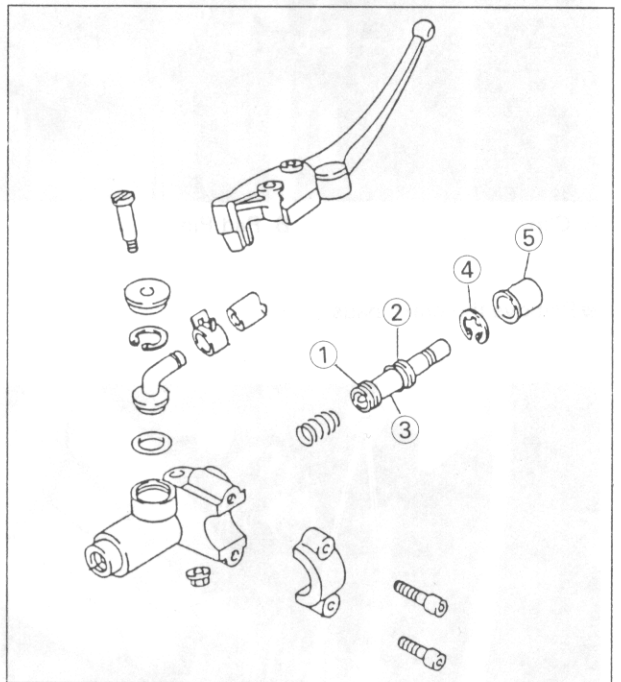
- Install the front master cylinder as shown.



- A. Align the mating surface.
- B. Equalize the clearances.

### Front Master Cylinder Disassembly

Refer to the base manual, except for the following.



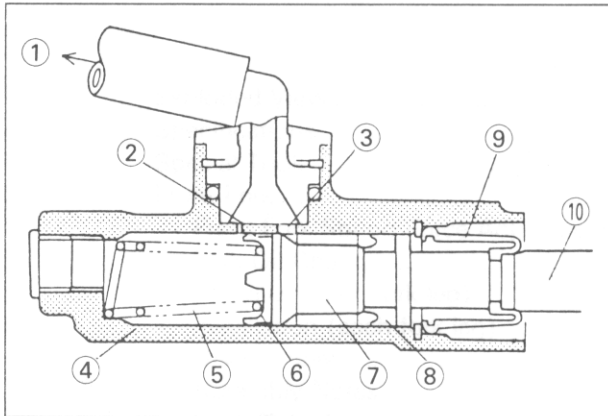
- 1. Primary Cup
- 2. Secondary Cup
- 3. Piston
- 4. Circlip
- 5. Dust Cover

**Inspection (Visually)**

- Check that there are no scratches, wear, rust, or pitting on the following parts.

- Inside of the Master Cylinder
- Outside of the Piston
- Primary Cups
- Secondary Cups
- Dust Covers
- Return Springs
- Relief and Supply Port Plugged

★ If they are damaged, replace them.



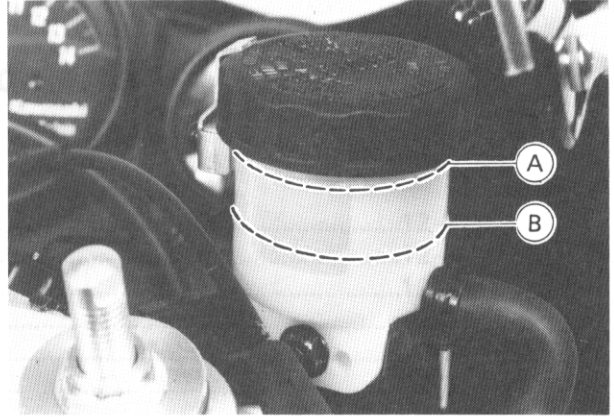
- |                  |                  |
|------------------|------------------|
| 1. Reservoir     | 6. Primary Cup   |
| 2. Relief Port   | 7. Piston        |
| 3. Supply Port   | 8. Secondary Cup |
| 4. Cylinder      | 9. Dust Cover    |
| 5. Return Spring | 10. Brake Lever  |

**Brake Fluid**

**Fluid Level Inspection**

Refer to the base manual, except for the following.

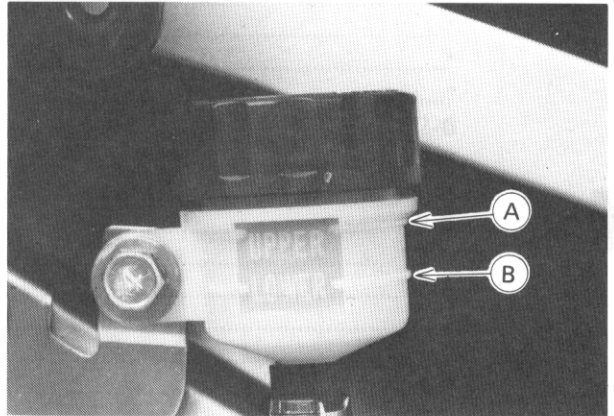
**Front Brake Fluid Reservoir**



A. Upper Level Line

B. Lower Level Line

**Rear Brake Fluid Reservoir**



A. Upper Level Line

B. Lower Level Line

# Suspension

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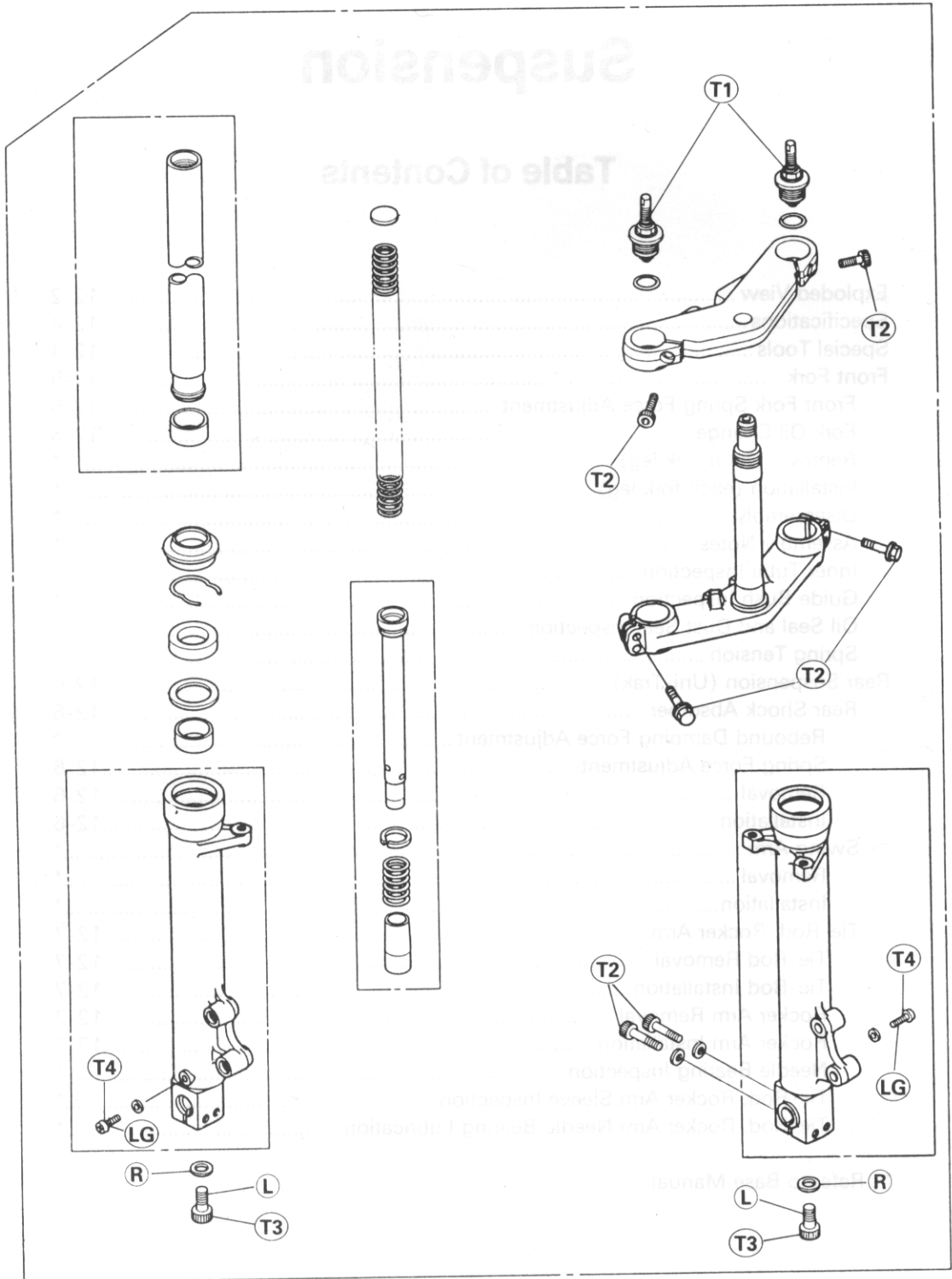
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\* : Refer to Base Manual



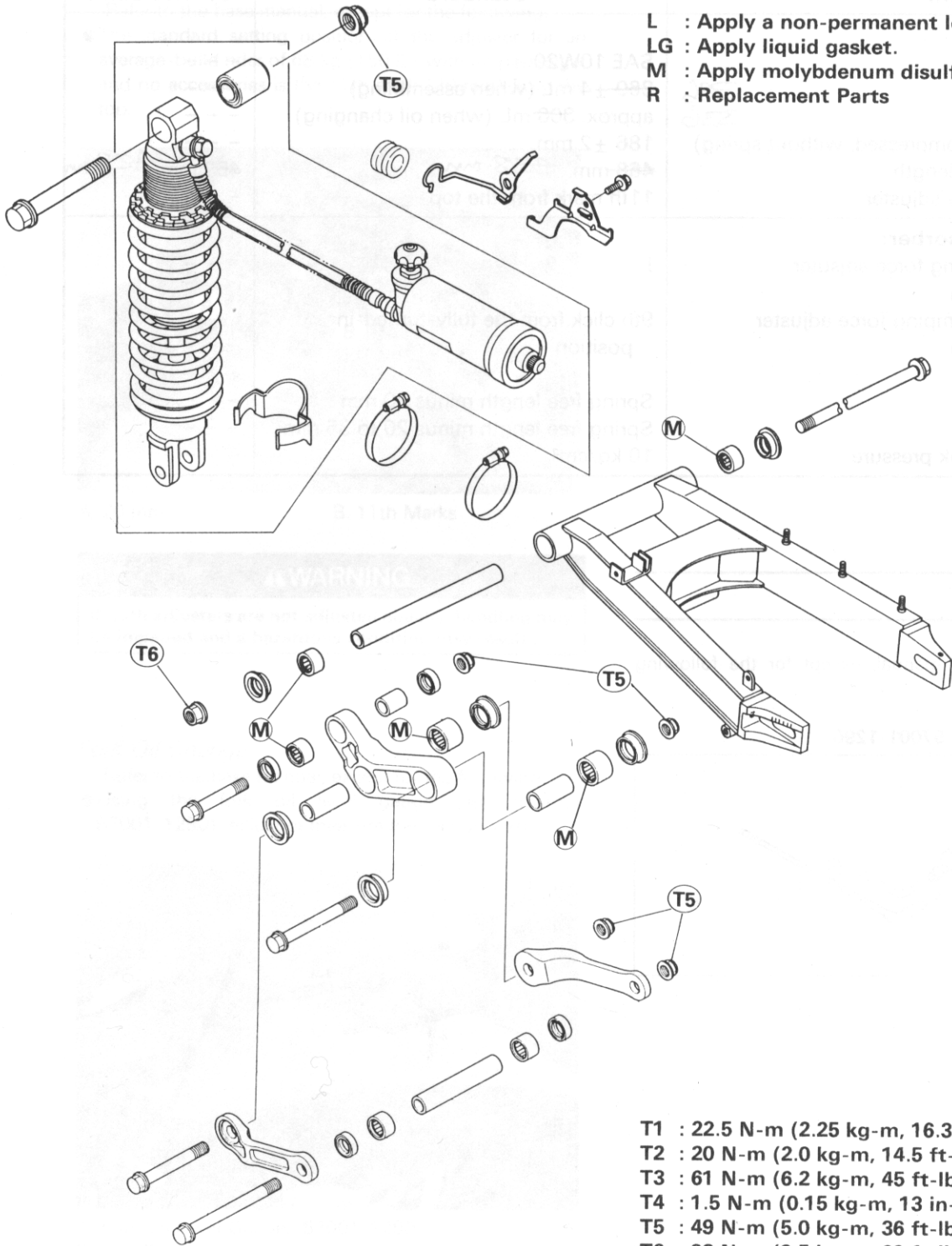
# 12-2 SUSPENSION

## Exploded View



Front Fork

Front Fork



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

- T1** : 22.5 N-m (2.25 kg-m, 16.3 ft-lb)
- T2** : 20 N-m (2.0 kg-m, 14.5 ft-lb)
- T3** : 61 N-m (6.2 kg-m, 45 ft-lb)
- T4** : 1.5 N-m (0.15 kg-m, 13 in-lb)
- T5** : 49 N-m (5.0 kg-m, 36 ft-lb)
- T6** : 93 N-m (9.5 kg-m, 69 ft-lb)

## 12-4 SUSPENSION

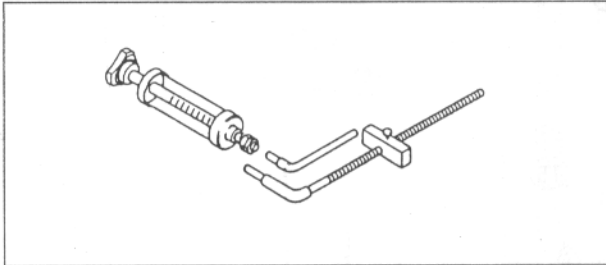
### Specifications

Item	Standard	Service Limit
<b>Front Fork:</b>		
Oil type	SAE 10W20	---
Oil capacity	<del>360</del> ±4 mL (when assembling)	---
	approx. <del>306</del> mL (when oil changing)	---
Oil level (fully compressed, without spring)	186 ±2 mm	---
Fork spring free length	<del>468</del> mm <b>438 mm</b>	<b>459 mm</b> <b>429 mm</b>
Fork spring force adjuster	11th mark from the top	---
<b>Rear Shock Absorber:</b>		
Rebound damping force adjuster setting position	I	---
Compression damping force adjuster setting position	9th click from the fully-turned-in position	---
Spring force:		
Standard	Spring free length minus 30 mm	---
Usable Range	Spring free length minus 20 to 35 mm	---
Gas reservoir tank pressure	10 kg/cm <sup>2</sup>	---

### Special Tools

Refer to the base manual, except for the following additional tool.

**Fork Level Gauge: 57001-1290**

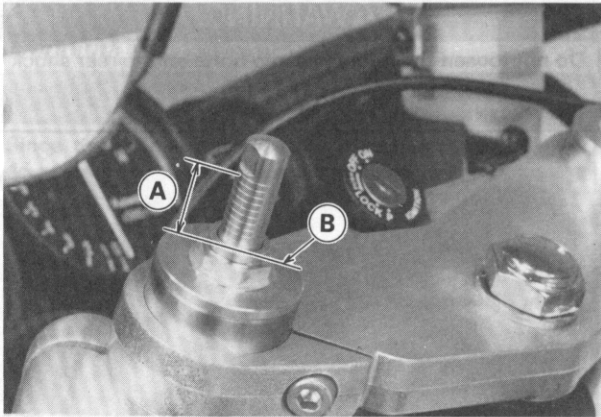


## Front Fork

### Front Fork Spring Force Adjustment

Refer to the base manual, except for the following.

- The standard setting position of the adjuster for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is the 11th mark (20 mm) from the top.



A. 20 mm

B. 11th Marks

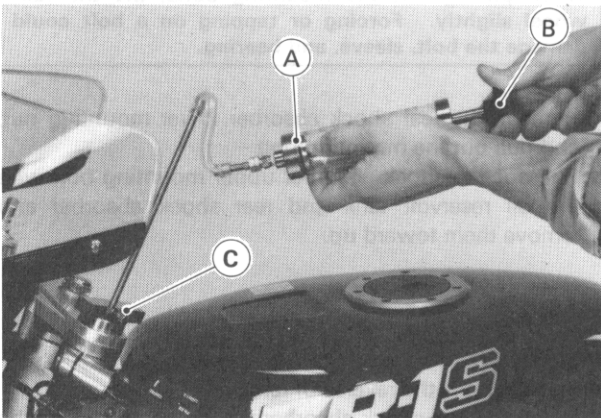
### ⚠ WARNING

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

### Fork Oil Change

Refer to the base manual, except for the following.

- Using the fork oil level gauge (special tool: 57001-1290), adjust or measure the fork oil level.



A. Fork Oil Level Gauge: 57001-1290

B. Handle

C. Stopper

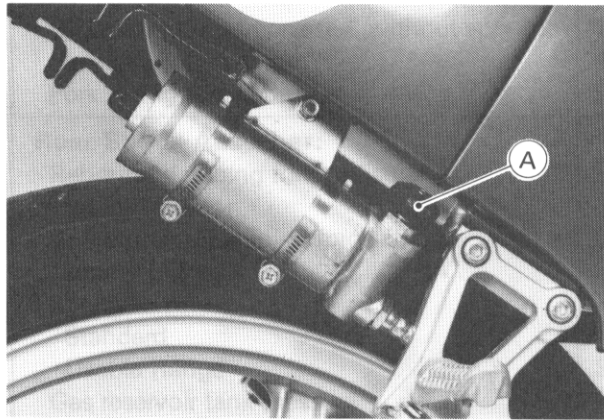
## 12-6 SUSPENSION

### Rear Suspension (Uni-Trak)

#### Rear Shock Absorber:

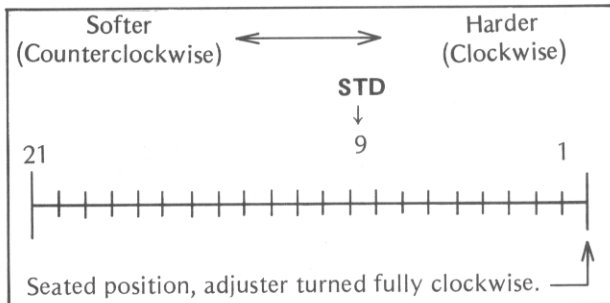
##### Compression Damping Force Adjustment

- To adjust the compression damping, turn the compression damping adjuster until you feel a click.



A. Adjuster

- The standard adjuster setting for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is the 9th click from the fully-turned-in position.



##### Spring Force Adjustment

Refer to the base manual.

- the standard setting position for the average-build rider of 68 kg (150 lb) with no passenger and no accessories is 30 mm of spring preload from the free length.

##### Spring Preload Setting

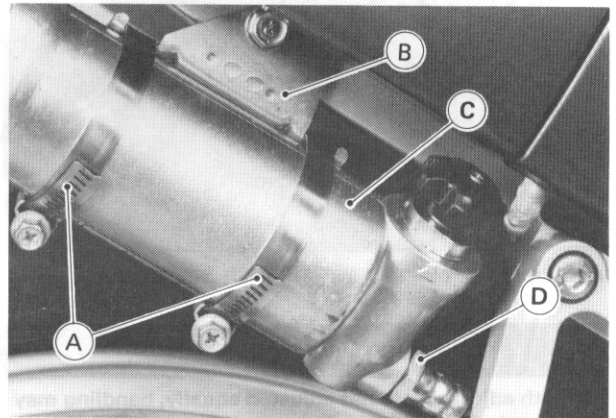
**Standard:** Spring free length minus 30 mm  
**Usable Range:** Spring free length minus 20 to 35 mm  
(weaker to stronger)

#### Removal

- Remove the following parts.
  - Lower Fairing
  - Muffler
- Using the jack (special tool: 57001-1238), raise the rear wheel off the ground.
- Remove the air cleaner housing (see Air Cleaner in the FUEL SYSTEM chapter).
- Remove the oil reservoir tank from the bracket.

### ⚠ WARNING

Do not loosen the oil hose banjo bolts on the rear shock absorber and oil reservoir tank. If loosened, spout out the oil by high pressure gas.



A. Clamps  
B. Bracket  
C. Oil Reservoir Tank  
D. Banjo Bolt

- Loosen the rear shock absorber upper mounting bolt.
- Remove the tie-rod lower bolt.

### ⚠ CAUTION

When pulling out the mounting bolts, lift the rear wheel slightly. Forcing or tapping on a bolt could damage the bolt, sleeve, and bearing.

- Remove the rear shock absorber lower mounting nut, and pull out the mounting bolt.
- Pull out the shock absorber upper mounting bolt with the oil reservoir tank and rear shock absorber and remove them toward up.

#### Installation

- Installation is the reverse of removal.
- Install the rear shock absorber on the frame so that the upper oil hose banjo bolt faces to rearward, and the rebound damping adjuster cover faces toward the rightside.
- To install the oil reservoir tank, refer to the Cable or Hose Routing in the General Information chapter.
- Tighten the following parts to the specified torque (see Exploded View).
  - Rear Shock Absorber Upper Mounting Nut
  - Rear Shock Absorber Lower Mounting Nut

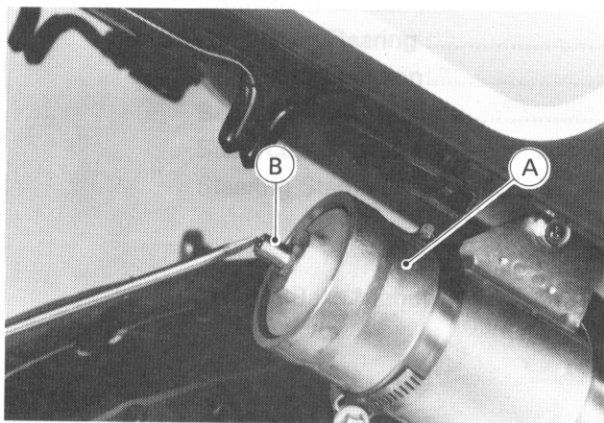
## Tie-Rod Lower Nut

- After installation, check the following items.
  - Throttle Cable
  - Carburetor Cable
  - Oil Pump Cable
  - Choke Cable

*Scrapping***▲WARNING**

Since the rear shock absorber contains nitrogen gas, do not scrap it by fire.

- Before a rear shock absorber is scrapped, replace the nitrogen gas completely. Do not point the valve to your face or body then.



A. Oil Reservoir Tank

B. Valve

**Tie-Rod and Rocker Arm***Tie-Rod Removal*

- Remove the following parts.
  - Lower Fairing
  - Muffler
- Using the jack (special tool: 57001-1238), raise the rear wheel off the ground.
- Remove the tie-rod lower bolt.

**▲CAUTION**

When pulling out the mounting bolts, raise the rear wheel slightly. Forcing or tapping on a bolt could damage the bolt, sleeve, and bearing.

- Remove the tie-rod upper bolt and take off the tie-rods.

*Tie-Rod Installation*

- Tighten the upper and lower mounting nuts to the specified torque (see Exploded View).

*Rocker Arm Removal*

- Remove the following parts.
  - Lower Fairing
  - Muffler
- Using the jack (special tool: 57001-1238), raise the rear wheel off the ground.
- Remove the tie-rod lower mounting bolt.

**▲CAUTION**

When pulling out the mounting bolts, lift the rear wheel slightly. Forcing or tapping on a bolt could damage the bolt, sleeve, and bearing.

- Remove the rear shock absorber lower mounting bolt.
- Pull out the rocker arm shaft, and remove the rocker arm.

*Rocker Arm Installation*

- Tighten the following parts.
  - Rocker Arm Shaft
  - Rear Shock Absorber Lower Mounting Nut
  - Tie-Rod Lower Mounting Nut

# Steering

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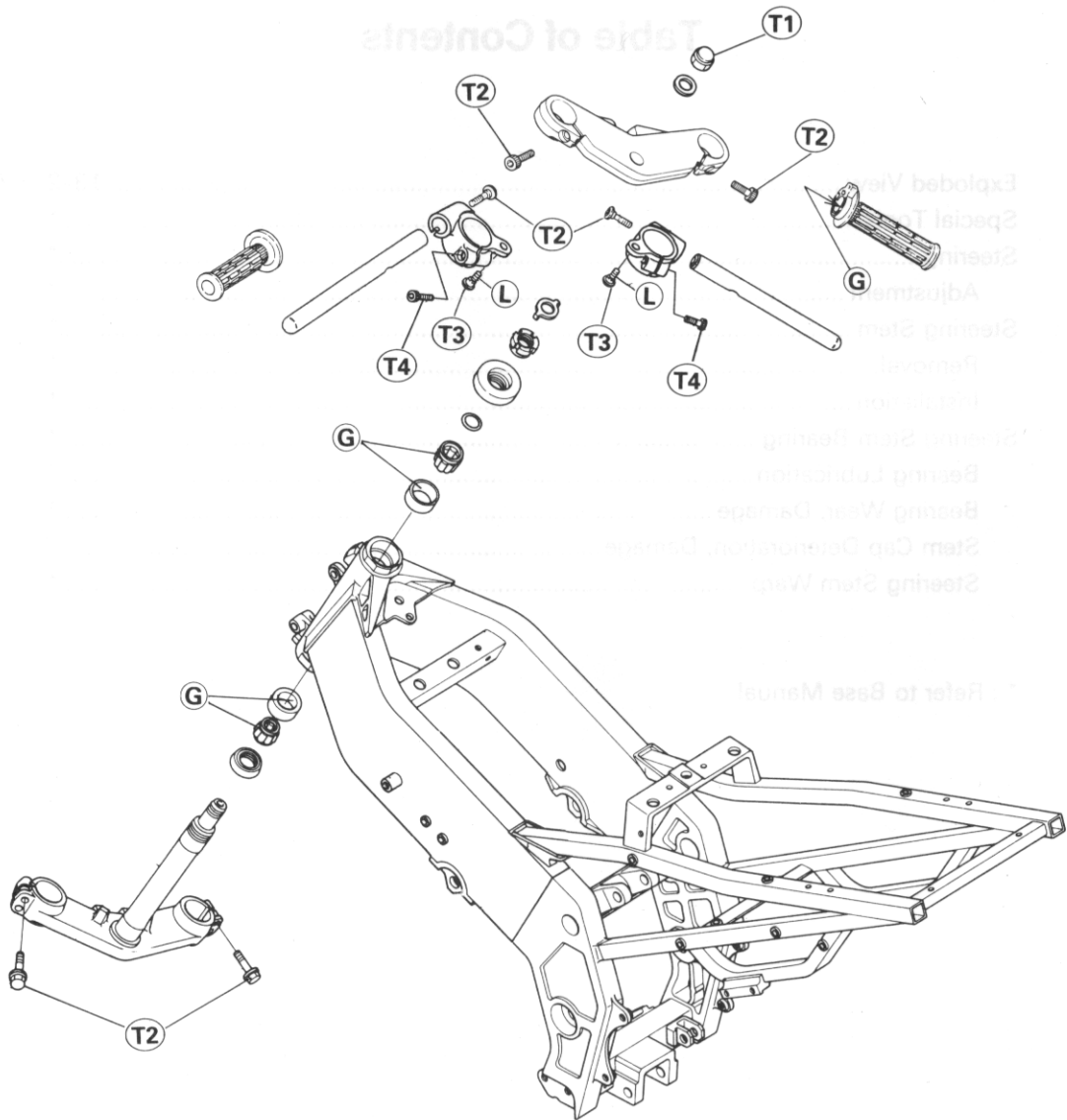
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\* : Refer to Base Manual



## 13-2 STEERING

### Exploded View



L : Apply non-permanent locking agent.

G : Apply grease.

T1 : 39 N-m (4.0 kg-m, 29 ft-lb)

T2 : 23 N-m (2.3 kg-m, 16.5 ft-lb)

T3 : 9.8 N-m (1.0 kg-m, 7.0 ft-lb)

T4 : 20 N-m (2.0 kg-m, 14.5 ft-lb)



# Frame

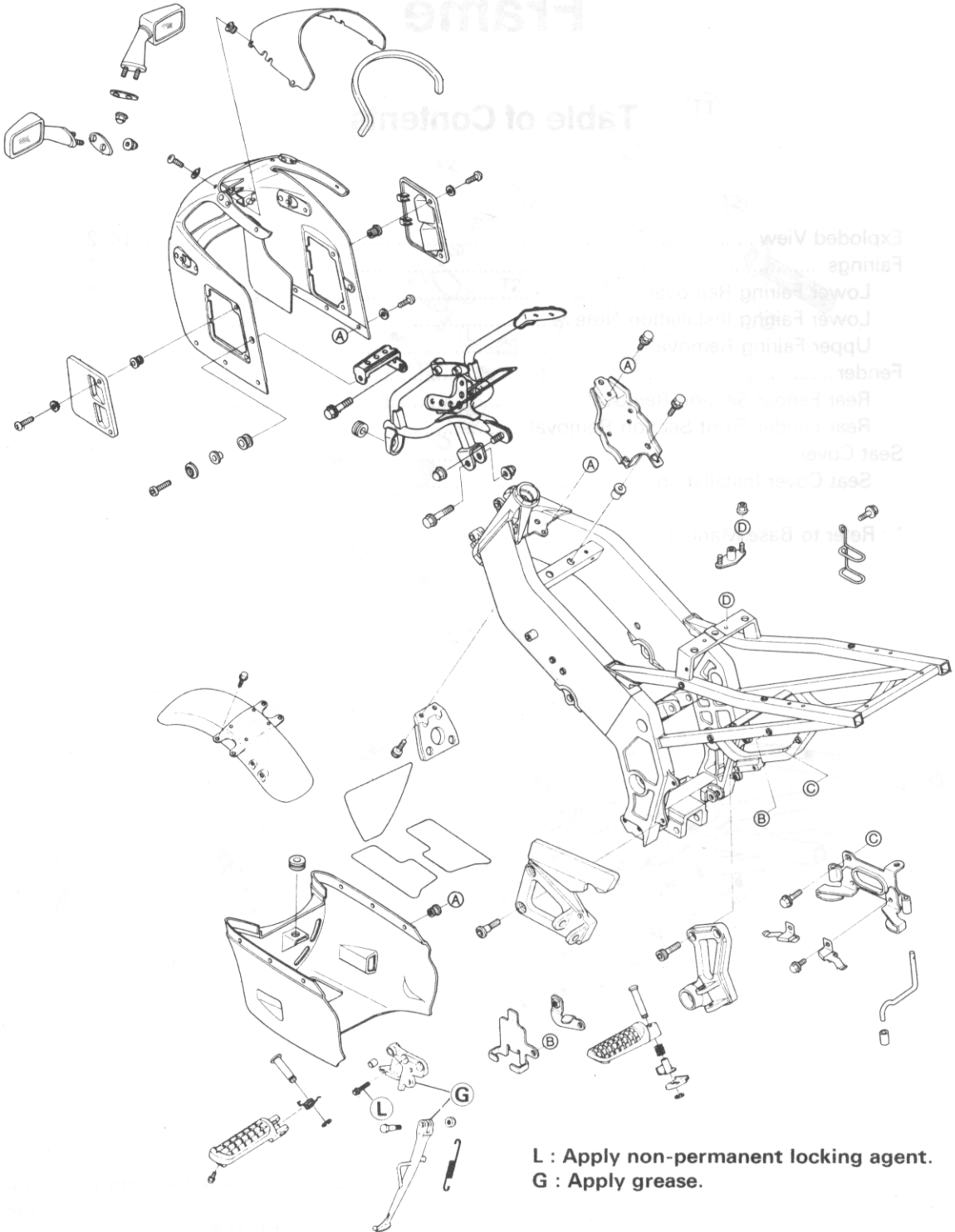
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Rear Fender Front Section Removal .....	*
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Seat Cover Installation .....	*

\* : Refer to Base Manual

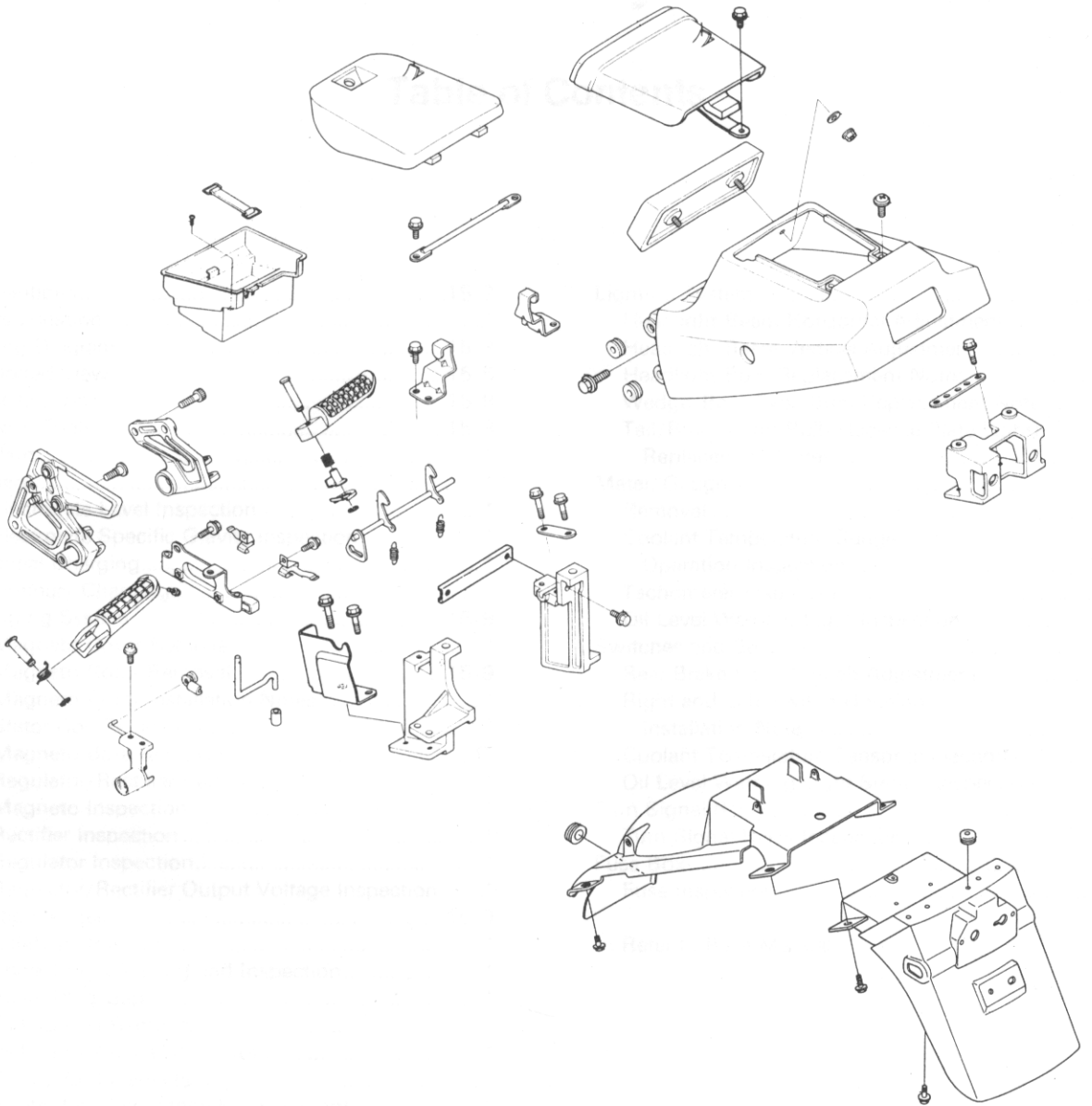
# 14-2 FRAME

## Exploded View



**L : Apply non-permanent locking agent.**  
**G : Apply grease.**

# Electrical System



# Electrical System

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\* : Refer to Base Manual

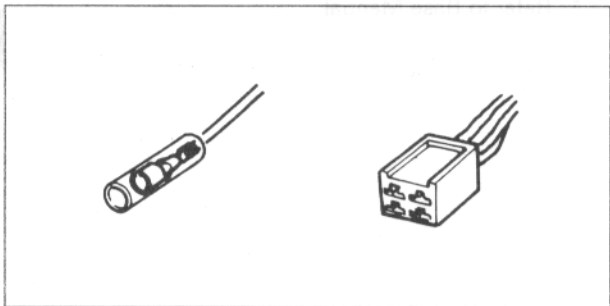
## 15-2 ELECTRICAL SYSTEM

### Precautions

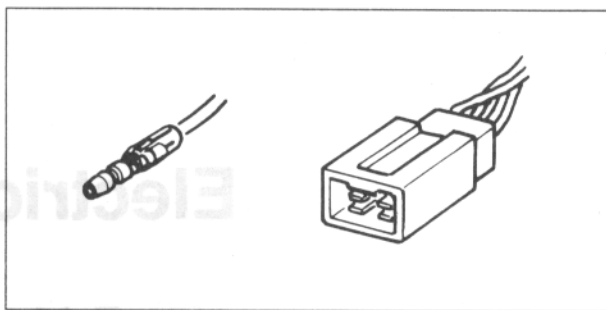
There are numbers of important precautions that are musts when servicing electrical system. Learn and observe all the rules below.

- Do not reverse the battery lead connections. This will burn out the diodes in the electrical parts.
- Always check battery condition before condemning other parts of an electrical system. A fully charged battery is a must for conducting accurate electrical system tests.
- The electrical parts should never be struck sharply, as with a hammer, or allowed to fall on a hard surface. Such a shock to the parts can damage them.
- To prevent damage to electrical parts, do not disconnect the battery leads or any other electrical connections when the ignition switch is on, or while the engine is running.
- Because of the large amount of current, never keep the starter switch pushed when the starter motor will not turn over, or the current may burn out the starter motor windings.
- Do not use a meter illumination bulb rated for other than the voltage or wattage specified in the wiring diagram, as the meter or gauge panel could be warped by excessive heat radiated from the bulb.
- Take care not to short the leads that are directly connected to the battery positive (+) terminal to the chassis ground.
- Troubles may involve one or in some cases all items. Never replace a defective part without determining what CAUSED the failure. If the failure was caused by some other item or items, they too must be repaired or replaced, or the new replacement will soon fail again.
- Make sure all connectors in the circuit are clean and tight, and examine wires for signs of burning, fraying, etc. Poor wires and bad connections will affect electrical system operation.
- Electrical Connectors

### Female Connectors



### Male Connectors

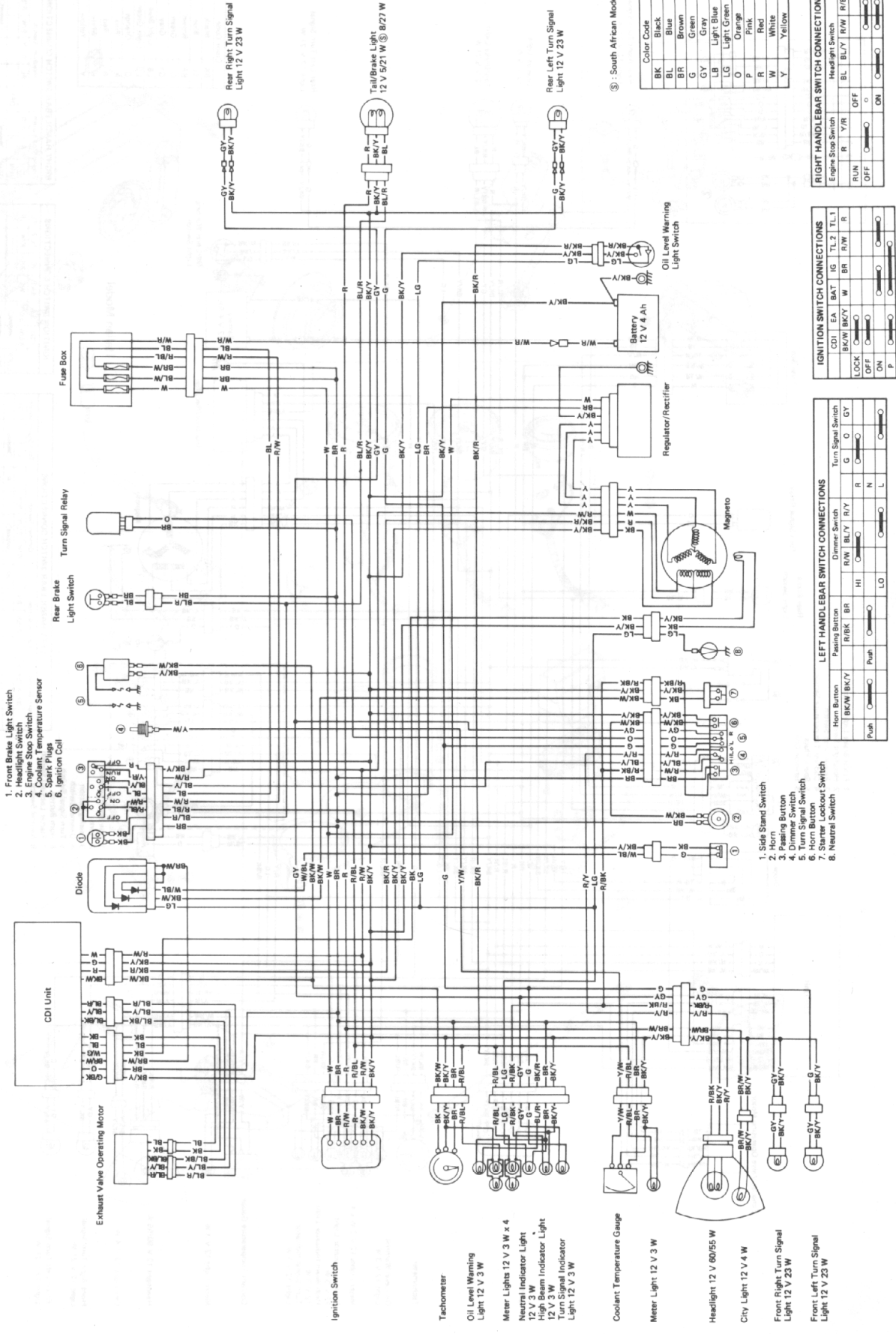


#### ○ Color Codes:

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

- Measure coil and winding resistance when the part is cold (at room temperature).

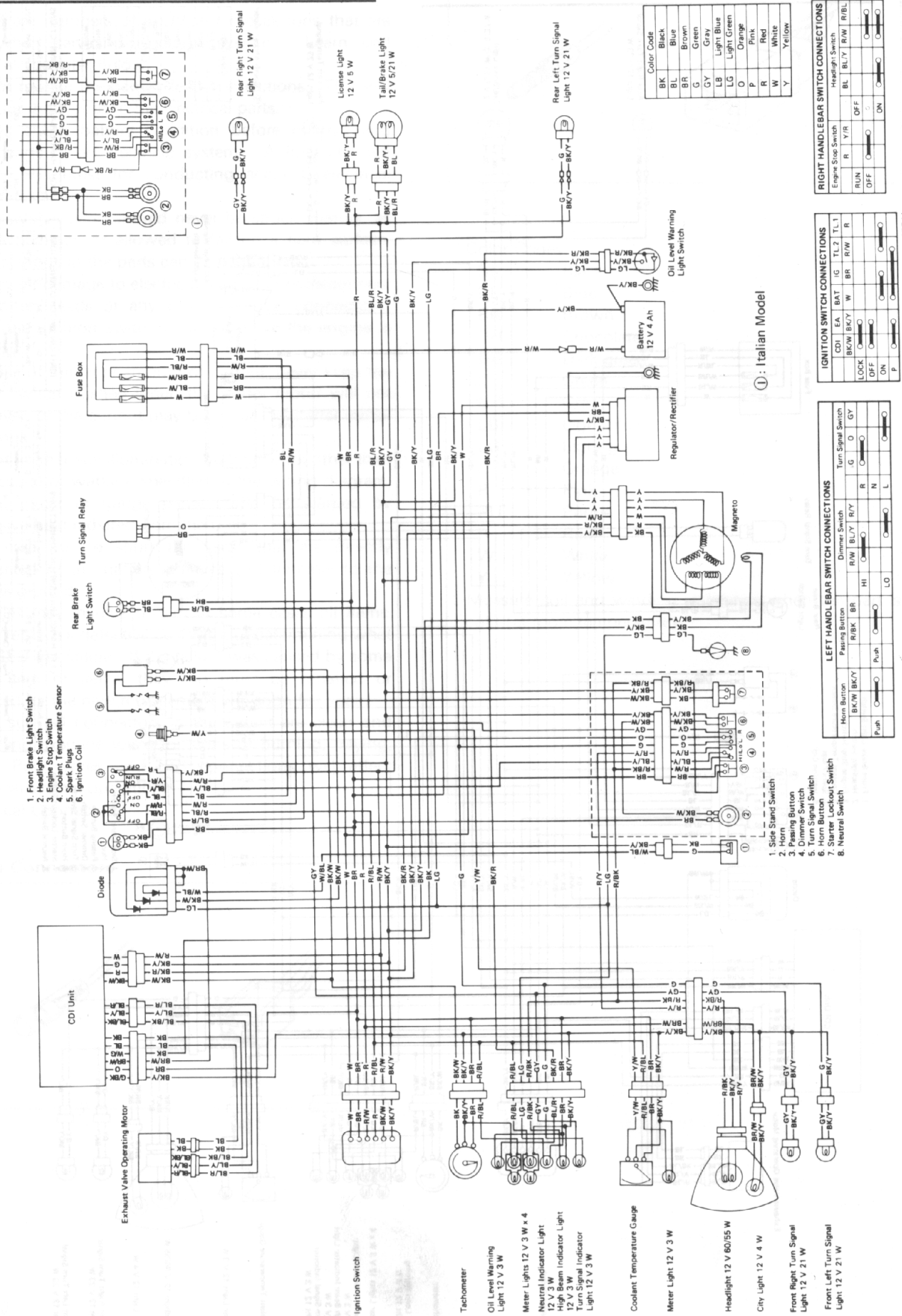
# KR250-C2 Wiring Diagram (Australian and South African Models)



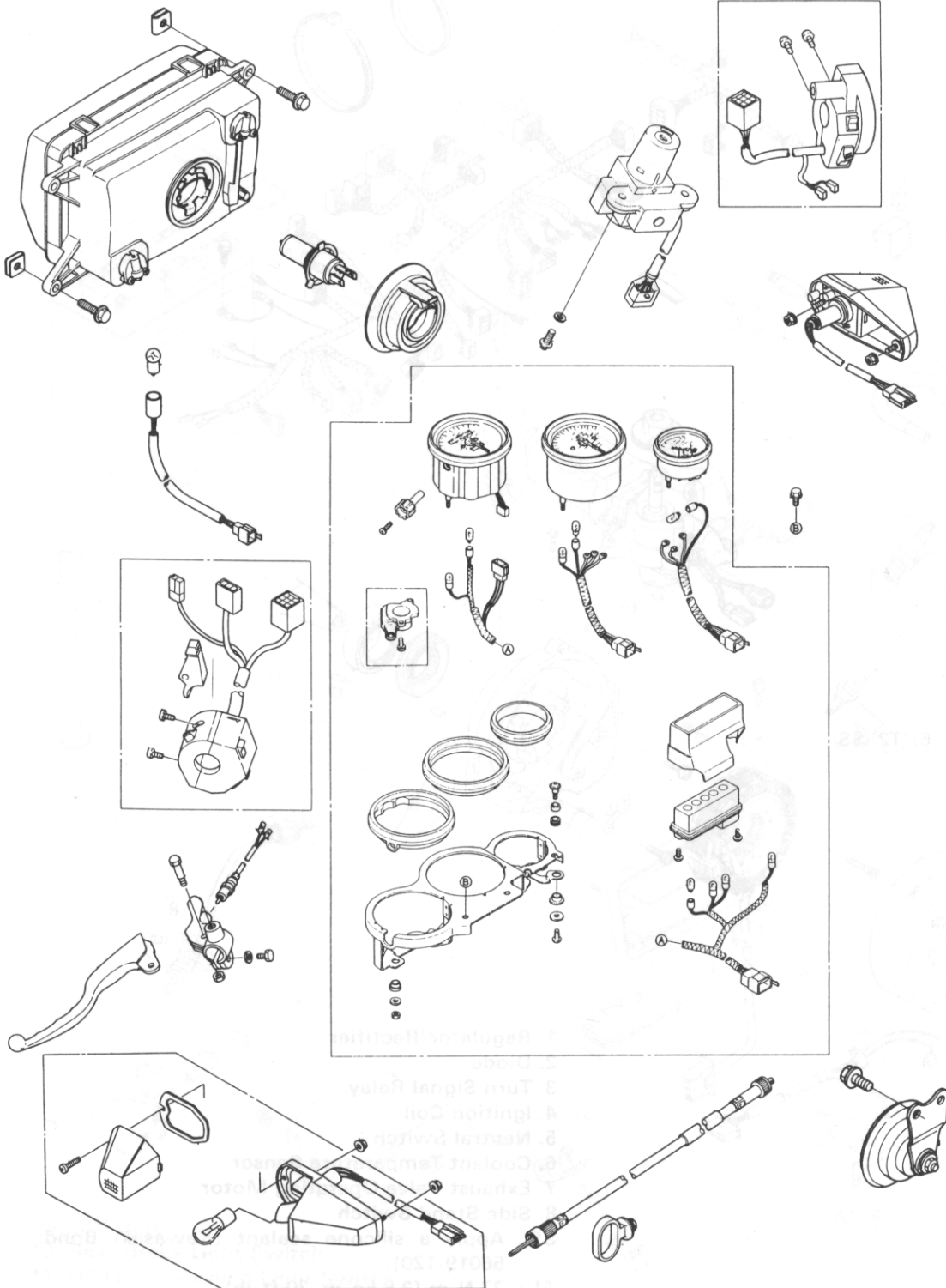
(8905-1-1196A)

# 15-4 ELECTRICAL SYSTEM

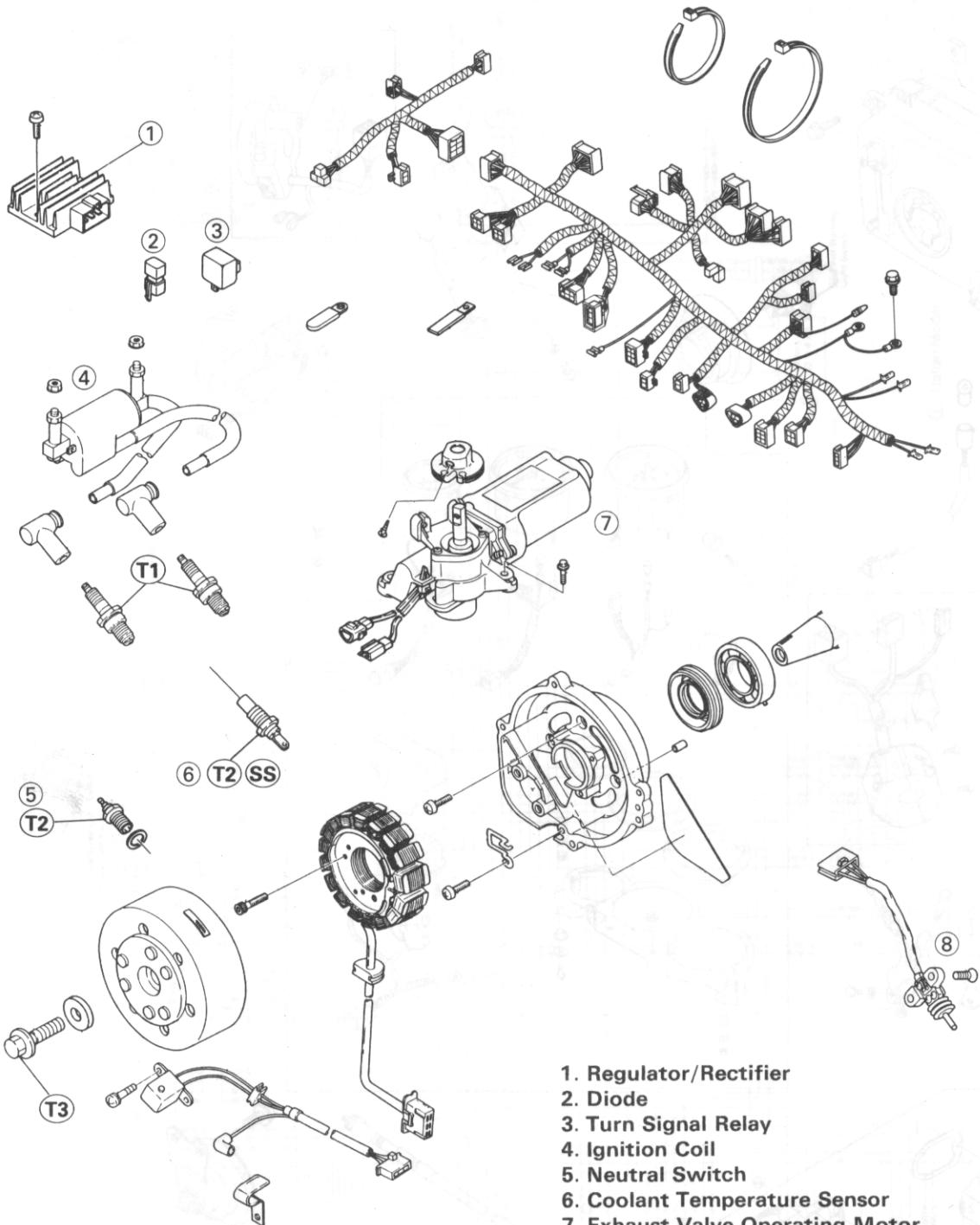
## KR250-C2 Wiring Diagram (Other than Australian and South African Models)



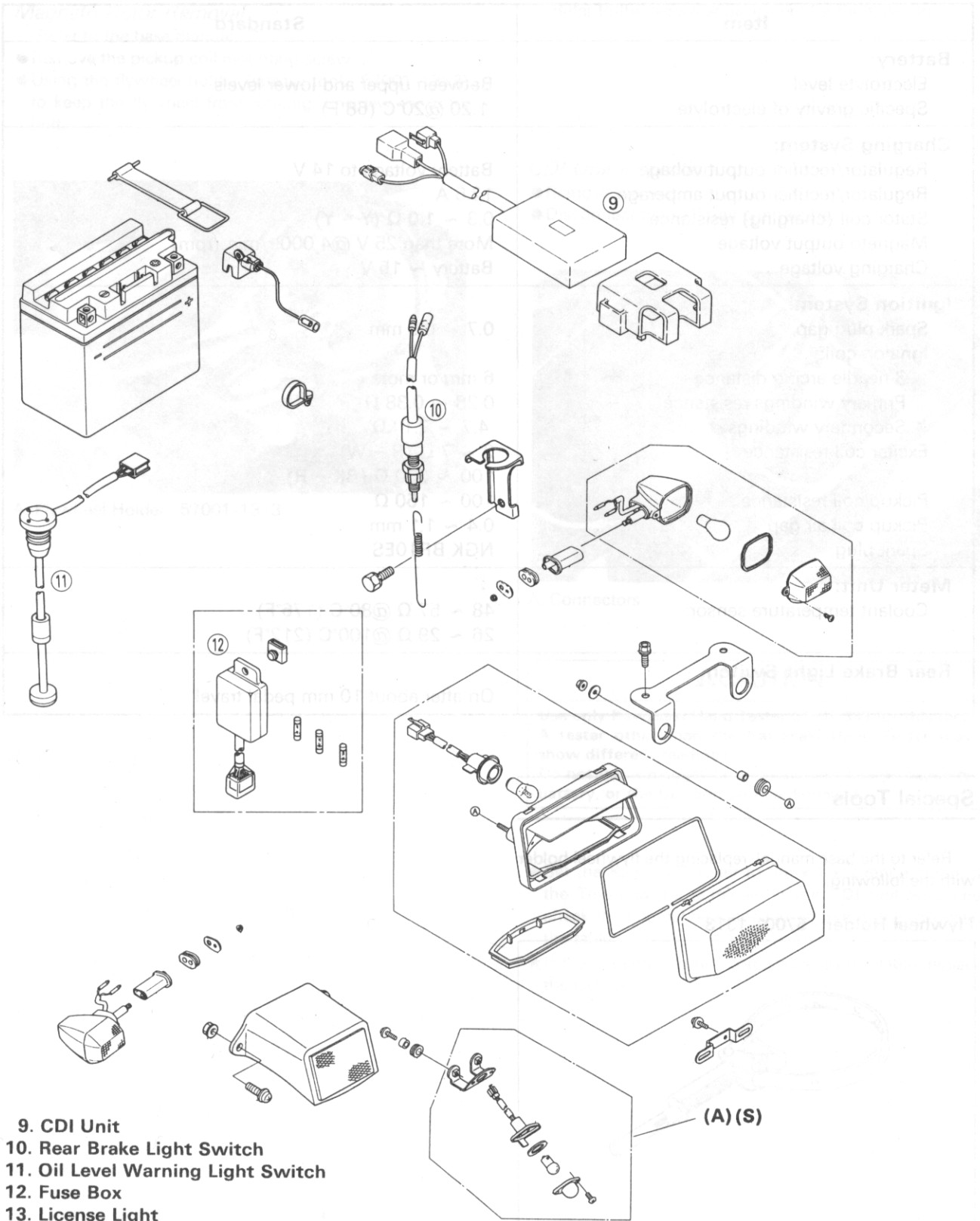
Exploded View







- 1. Regulator/Rectifier
  - 2. Diode
  - 3. Turn Signal Relay
  - 4. Ignition Coil
  - 5. Neutral Switch
  - 6. Coolant Temperature Sensor
  - 7. Exhaust Valve Operating Motor
  - 8. Side Stand Switch
- SS : Apply a silicone sealant (Kawasaki Bond: 56019-120).
- T1 : 27 N-m (2.8 kg-m, 20 ft-lb)
- T2 : 15 N-m (1.5 kg-m, 11.0 ft-lb)
- T3 : 98 N-m (10.0 kg-m, 72 ft-lb)



- 9. CDI Unit**
- 10. Rear Brake Light Switch**
- 11. Oil Level Warning Light Switch**
- 12. Fuse Box**
- 13. License Light**
- (A) : Australian model**
- (S) : South African model**

## 15-8 ELECTRICAL SYSTEM

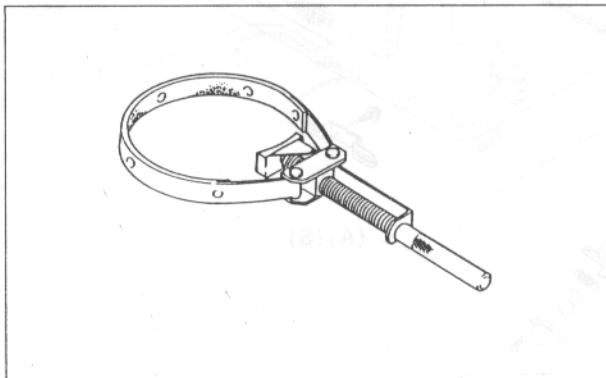
### Specifications

Item	Standard
<b>Battery:</b> Electrolyte level Specific gravity of electrolyte	Between upper and lower levels 1.20 @20°C (68°F)
<b>Charging System:</b> Regulator/rectifier output voltage Regulator/rectifier output amperage Stator coil (charging) resistance Magneto output voltage Charging voltage	Battery voltage to 14 V 12.5 A 0.3 ~ 1.0 Ω (Y - Y) More than 25 V @4 000 r/min (rpm) Battery ~ 15 V
<b>Ignition System:</b> Spark plug gap Ignition coil: 3 needle arcing distance Primary windings resistance Secondary windings Exciter coil resistance  Pickup coil resistance Pickup coil air gap Spark plug	0.7 ~ 0.8 mm  6 mm or more 0.28 ~ 0.38 Ω 4.7 ~ 7.1 kΩ 2 ~ 7 Ω (R - W) 100 ~ 200 Ω (BK - R) 100 ~ 150 Ω 0.4 ~ 1.1 mm NGK BR10ES
<b>Meter Unit:</b> Coolant temperature sensor:	48 ~ 57 Ω @80°C (176°F) 26 ~ 29 Ω @100°C (212°F)
<b>Rear Brake Light Switch:</b>	On after about 10 mm pedal travel

### Special Tools

Refer to the base manual, replacing the flywheel holder with the following.

**Flywheel Holder: 57001-1313**

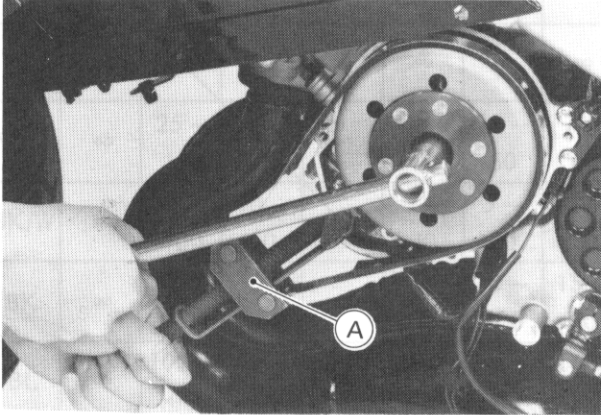


## Charging System

### Magneto Rotor Removal

Refer to the base manual.

- Remove the pickup coil mounting screw.
- Using the flywheel holder (special tool: 57001-1313) to keep the flywheel from rotating, unscrew the rotor bolt.



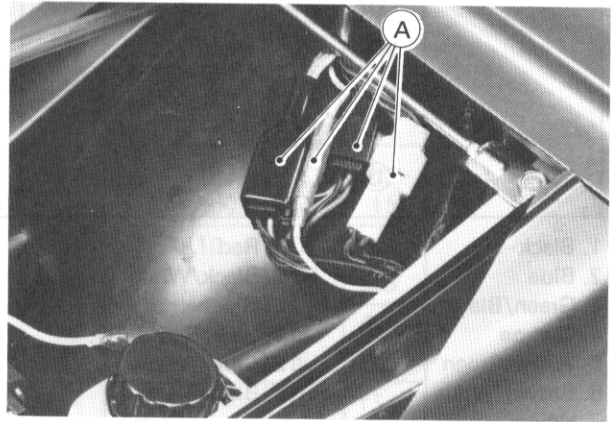
A. Flywheel Holder: 57001-1313

## Ignition System

Refer to the base manual except for the following.

### CDI Unit Inspection

- Remove the seat.
- Disconnect the CDI unit connectors.



A. Connectors

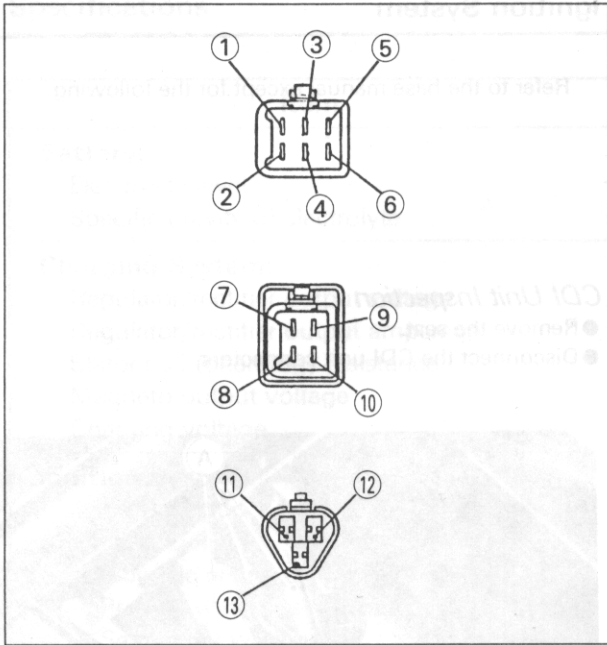
### ⚠ CAUTION

Use only Kawasaki Hand Tester 57001-983 for this test. A tester other than the Kawasaki Hand Tester may show different readings. Do not use a megger or a meter with a large capacity battery, or the CDI unit will be damaged.

- Set the Kawasaki Tester to the x 1 k $\Omega$  range, connect the Tester to the terminals in the CDI unit lead, and check the internal resistance as shown in the following table.
- ★ If the readings do not correspond to the table, replace the CDI unit.

# 15-10 ELECTRICAL SYSTEM

## CDI Unit Terminals



- |                |                 |
|----------------|-----------------|
| 1. Black       | 8. Red          |
| 2. Blue        | 9. Black/White  |
| 3. Green/Black | 10. Green       |
| 4. Orange      | 11. Blue/Red    |
| 5. White/Green | 12. Blue/Yellow |
| 6. Brown/White | 13. Blue/Black  |
| 7. White       |                 |

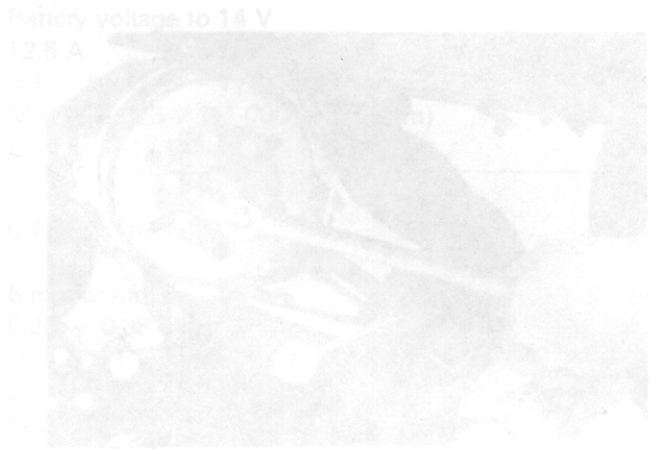
**CAUTION**

Use only Kawasaki Hand Tester 5700-1834 for the test. A tester other than the Kawasaki Hand Tester may show different readings. Do not use a tester with a meter with a needle. Battery in the CDI unit will be damaged.

★ If the readings do not correspond to the table, replace the CDI unit.

## Charging System

Refer to the base manual.  
 Magneto Rotor Removal  
 ● Remove the pickup coil mounting screw.  
 ● Using the flywheel holder, remove the rotor to keep the flywheel from rotating.  
 ● Remove the rotor from the base manual.



A flywheel holder, 5700-1834  
 12.5 A  
 22 - 62

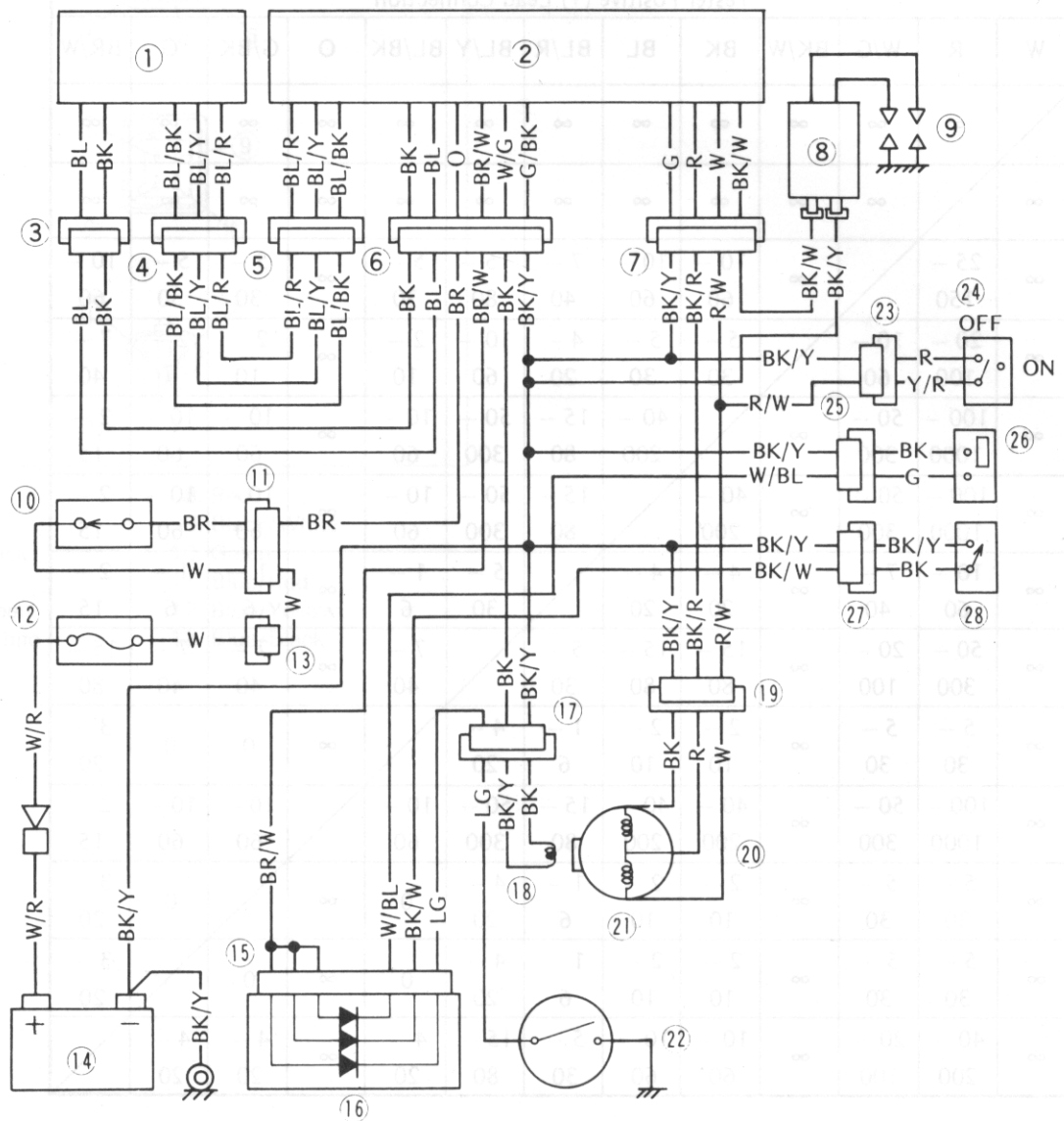
After repair, the following procedure should be performed.

CDI Unit Internal Resistance (x 1 kΩ)

		Tester Positive (+) Lead Connection													
Lead Color		W	R	W/G	BK/W	BK	BL	BL/R	BL/Y	BL/BK	O	G/BK	G	BR/W	
Tester Negative (-) Lead Connection	W	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	
	R	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	
	W/G	∞	25 – 150	∞	∞	10 – 60	10 – 60	7 – 40	15 – 80	5 – 30	∞	5 – 30	5 – 30	10 – 60	
	BK/W	∞	20 – 100	10 – 60	∞	5 – 30	5 – 30	4 – 20	10 – 60	2 – 10	∞	2 – 10	2 – 10	7 – 40	
	BK	∞	100 – 1000	50 – 300	∞	∞	40 – 200	15 – 80	50 – 300	10 – 60	∞	10 – 60	10 – 60	2 – 15	
	BL	∞	100 – 1000	50 – 300	∞	∞	40 – 200	15 – 80	50 – 300	10 – 60	∞	10 – 60	10 – 60	2 – 15	
	BL/R	∞	10 – 60	7 – 40	∞	∞	4 – 20	4 – 20	5 – 30	1 – 6	∞	1 – 6	1 – 6	2 – 15	
	BL/Y	∞	50 – 300	20 – 100	∞	∞	15 – 80	15 – 80	5 – 30	7 – 40	∞	7 – 40	7 – 40	15 – 80	
	BL/BK	∞	5 – 30	5 – 30	∞	∞	2 – 10	2 – 10	1 – 6	4 – 20	∞	0	0	3 – 20	
	O	∞	100 – 1000	50 – 300	∞	∞	40 – 200	40 – 200	15 – 80	50 – 300	10 – 60	∞	10 – 60	10 – 60	2 – 15
	G/BK	∞	5 – 30	5 – 30	∞	∞	2 – 10	2 – 10	1 – 6	4 – 20	0	∞	0	3 – 20	
	G	∞	5 – 30	5 – 30	∞	∞	2 – 10	2 – 10	1 – 6	4 – 20	0	∞	0	3 – 20	
	BR/W	∞	40 – 200	20 – 100	∞	∞	10 – 60	10 – 60	5 – 30	15 – 80	4 – 20	∞	4 – 20	4 – 20	

# 15-12 ELECTRICAL SYSTEM

## Ignition System Wiring Diagram



- 1. Exhaust Valve Operating Motor
- 2. CDI Unit
- 3. 2-pin Connector
- 4. 3-pin Connector
- 5. 3-pin Connector
- 6. 6-pin Connector
- 7. 4-pin Connector
- 8. Ignition Coil
- 9. Spark Plug
- 10. Ignition Switch

- 11. 6-pin Connector
- 12. 20 A Fuse
- 13. 6-pin Connector
- 14. Battery
- 15. 6-pin Connector
- 16. Diode
- 17. 3-pin Connector
- 18. Pickup Coil
- 19. 6-pin Connector
- 20. Exciter Coil

- 21. Magneto Rotor
- 22. Neutral Switch
- 23. 9-pin Connector
- 24. Engine Stop Switch
- 25. 2-pin Connector
- 26. Side Stand Switch
- 27. 2-pin Connector
- 28. Starter Inter Lock Switch

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- Lubrication .....\*
- Nut, Bolt, and Fastener Tightness.....\*
- Tightness Inspection .....\*
- Unit Conversion Table.....\*

\* : Refer to Base Manual



**MODEL APPLICATION**

Year	Model	Beginning Frame No.
1990	KR250-C2	KR250C-001001

**KAWASAKI**  
HEAVY INDUSTRIES, LTD.  
CONSUMER PRODUCTS & COMPONENTS GROUP