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Kawasaki

KDX250

Motorcycle
Service Manual
Supplement

First Edition (1) : Jan. 28, 1991 (M)

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.

Foreword

This KDX250D Service Manual Supplement is designed to be used in conjunction with the KDX200E Motorcycle Service Manual (P/N 99924-1114-01). The maintenance and repair procedures described in this supplement are only those that are unique to the KDX250D motorcycle. Most service operations for these models remain identical to those described in the base Service Manual. Complete and proper servicing of the KDX250D motorcycle therefore requires both this supplement and the base Service Manual.

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

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

For the duration of 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 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 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.

Quick Reference Guide

This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.
- Refer to the sectional table of contents for the exact pages to locate the specific topic required.

1

General Information

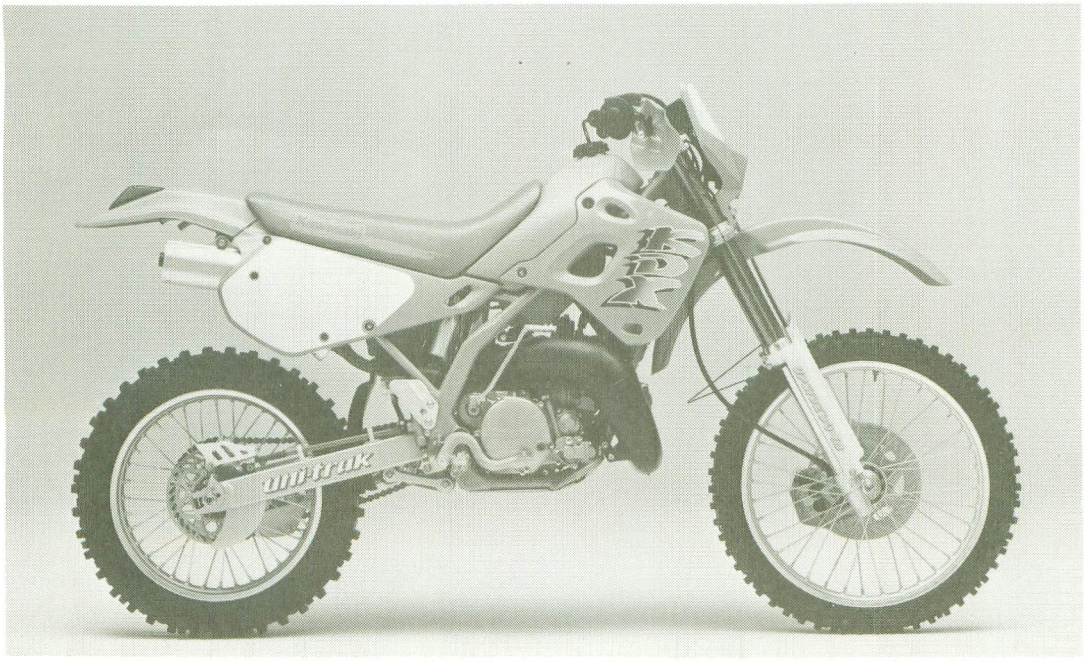
Table of Contents

* : Refer to Base Manual

Model Identification

KDX250-D1 Left Side View

KDX250-D1 Right Side View



General Specifications

Item			KDX250-D1
Dimensions :			
Overall length			2 165 mm
Overall width			850 mm
Overall height			1 250 mm
Wheelbase			1 475 mm
Road clearance			340 mm
Seat height			955 mm
Dry weight			107 kg
Curb weight :	Front		58 kg
	Rear		66 kg
Fuel tank capacity			12.5 L
Engine :			
Type			2-stroke, single cylinder, piston reed valve
Cooling system			Liquid-cooled
Bore and stroke			67.4 x 70.0 mm
Displacement			249 mL
Compression ratio			8.7 : 1
Maximum horsepower			29.4 kW (40 PS) @7 000 r/min (rpm)
Maximum torque			40.2 N-m (4.1 kg-m, 29.7 ft-lb) @6 500 r/min (rpm)
Carburetion system			Carburetor, KEIHIN PWK38
Starting system			Primary kick
Ignition system			CDI
Ignition timing			15° BTDC @6 000 r/min (rpm)
Spark plug			NGK B9ES (C)(U) NGK BR9ES
Port timing:	Inlet	Open	Full open
		Close	–
	Scavenging	Open	59° BBDC
		Close	59° ABDC
	Exhaust	Open	92° BBDC
		Close	92° ABDC
Lubrication system			Petrol mix (32 : 1)
Drive Train :			
Primary reduction system :			
	Type		Gear
	Reduction ratio		2.750 (55/20)
Clutch type			Wet, multi disc
Transmission :	Type		5-speed, constant mesh, return shift
	Gear ratios :	1st	2.384 (31/13)
		2nd	1.764 (30/17)
		3rd	1.388 (25/18)
		4th	1.100 (22/20)
		5th	0.928 (26/28)
Final drive system :	Type		chain drive
	Reduction ratio		3.428 (48/14)
Overall drive ratio			8.755 @Top gear
Transmission oil :	Grade		SE class
	Viscosity		SAE 10W30 or 10W40
	Capacity		0.8 L

Item		KDX250-D1
Frame :		
Type		Tubular, semi-double cradle
Steering angle		45° to either side
Caster (rake angle)		27.5°
Trail		116 mm
Front tire :	Make/Type	DUNLOP D752F, Tube type
	Size	80/100-21 51M
Rear tire :	Make/Type	DUNLOP D752, Tube type
	Size	110/100-18 64M
Front suspension :	Type	Telescopic fork (up side down)
	Wheel travel	300 mm
Rear suspension :	Type	Swing arm (Uni-Trak)
	Wheel travel	310 mm
Brake type :	Front and Rear	Single disc
Effective disc diameter :	Front	220 mm
	Rear	190 mm
Electrical Equipment:		
Headlight		12 V 30 W (quartz-halogen)
Taillight		12 V 10 W

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

(C) : Canadian model (U) : U.K. model

Periodic Maintenance Chart

The maintenance must be done in accordance with this chart to keep the motorcycle in good running condition.

OPERATION \ FREQUENCY	† ODOMETER READING				
	100 km	500 km	1000 km	1500 km	2000 km
ENGINE					
Clutch--adjust	●	●	●	●	●
Clutch and friction plates--check*		●	●	●	●
Throttle cable--adjust	●	●	●	●	●
Spark plug--clean, gap	●	●	●	●	●
Air cleaner element--clean		●	●	●	●
Air cleaner element--replace	If damaged				
Carburetor--inspect/adjust	●	●	●	●	●
Transmission oil--change			●		●
Piston and piston ring--clean/check*			●		●
Cylinder head, cylinder and exhaust valves--inspect			●		●
Small end bearing--check*			●		●
Muffler--clean			●		●
Exhaust pipe O-ring--replace			●		●
Engine sprocket--check*			●		●
Coolant--change	Every 2 years				
Radiator hoses, connections--check*			●		●
Spark arrester--cleaning	Every 4000 km				
CHASSIS					
Brake adjustment--check*	●	●	●	●	●
Brake pad wear--check*		●	●	●	●
Brake fluid level--check*		●	●	●	●
Brake fluid--change	Every 2 years				
Brake master cylinder cup and dust seal--replace	Every 2 years				
Brake caliper piston seal and dust seal--replace	Every 2 years				
Brake hose--replace	Every 4 years				
Spoke tightness and rim runout--check*	●	●	●	●	●
Drive chain--adjust	Every 300 km				
Drive chain--lubricate	Before and after each day of operation				
Drive chain wear--check*		●	●	●	●
Chain slipper and guide--replace	If damaged				
Front fork--inspect/clean	●	●	●	●	●
Front fork oil--change	Every year				
Nuts, bolts, fasteners--check*	●		●		●
Fuel system--clean	●	●	●	●	●
Fuel hose--replace	Every 4 years				
Steering play--check*	●	●	●	●	●
Steering stem bearing--grease					●
Rear sprocket--check*		●	●	●	●
General lubrication--lubricate	●	●	●	●	●
Wheel bearing--grease					●
Swing arm and Uni-Trak linkage pivots--grease		●	●	●	●
Swing arm and Uni-Trak linkage pivots--check*		●	●	●	●
Rear shock oil--replace	Every year				

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

Torque and Locking Agent

Tighten all bolts and nuts to the proper torque using an accurate torque wrench. If 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 or liquid gasket.

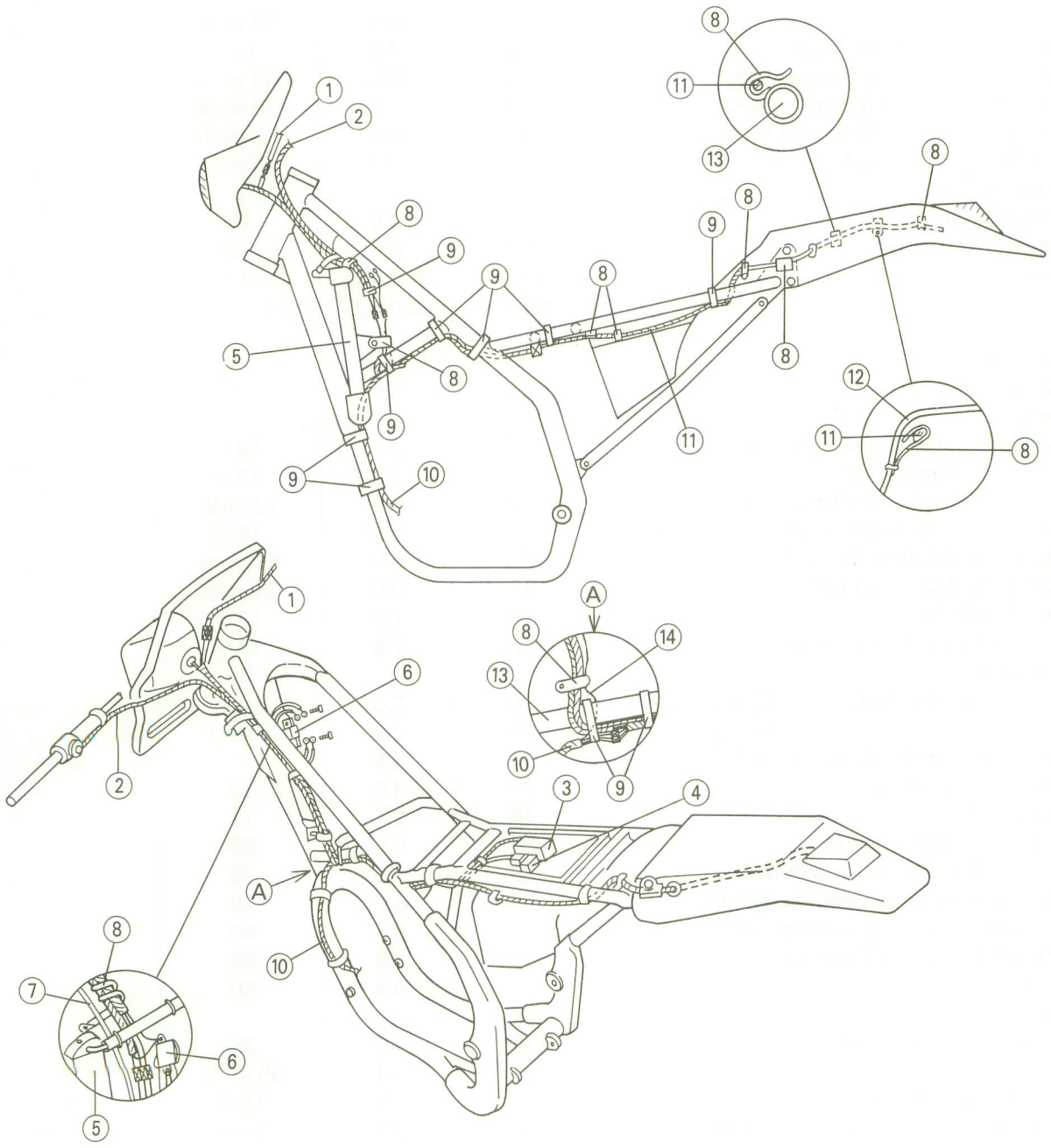
When checking the tightening torque of the bolts and nuts, first loosen the bolt or nut by half a turn and then tighten to the specified torque.

Letter used in the "Remarks" column mean:
L : Apply a non-permanent locking agent to the threads.

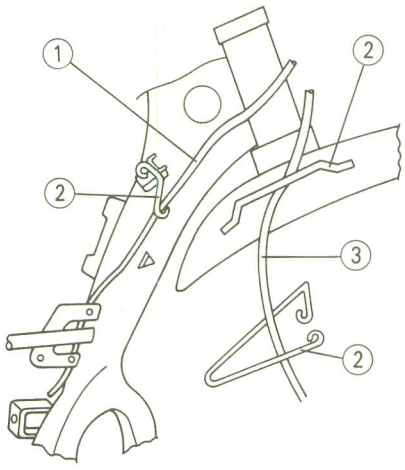
Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Fuel System:				
Rear Frame Mounting Bolts	44	4.5	33	
Carburetor Holder Mounting Bolts	8.8	0.9	78 in-lb	
Cooling System:				
Water Pump Cover Bolts	8.8	0.9	78 in-lb	
Water Pump Cover Elbow Bolts	4.9	0.5	43 in-lb	
Water Pump Impeller Bolt	6.9	0.7	61 in-lb	
Coolant Drain Plug:				
Water Pump Cover	22	2.2	16.0	
Cylinder	22	2.2	16.0	
Engine Top End:				
Cylinder Head Nuts	25	2.5	18.0	
Cylinder Nuts	34	3.5	25	
Cylinder Elbow Bolts	8.8	0.9	78 in-lb	
Engine Bracket Nuts:				
Frame Side	39	4.0	29	
Engine Side	44	4.5	33	
Shaft Lever Nut	8.3	0.85	74 in-lb	
Main Exhaust Valve Cover Bolts	8.8	0.9	78 in-lb	
Exhaust Valve Operating Rod Retaining Screw	4.9	0.5	43 in-lb	
Exhaust Valve Operating Rod Right Cover Bolts	2.5	0.25	22 in-lb	
Engine Right Side:				
External Shift Mechanism Return Spring Pin	22	2.2	16.0	L
Clutch Spring Bolts	8.8	0.9	78 in-lb	
Clutch Cover Bolts	8.8	0.9	78 in-lb	
Clutch Hub Nut	98	10.0	72	
Advancer Lever Mounting Bolts	3.9	0.4	35 in-lb	
Shaft Lever Nut	8.3	0.85	74 in-lb	
Kick Ratchet Guide Bolt	8.8	0.9	78 in-lb	
Kick Pedal Nut	49	5.0	36	
Neutral Set Lever Bolt	8.8	0.9	78 in-lb	
Right Engine Cover Bolts	8.8	0.9	78 in-lb	
Engine Removal/Installation:				
Engine Mounting Nuts	44	4.5	33	
Engine Bracket Nuts:	44	4.5	33	
Frame Side	39	4.0	29	
Engine Side	44	4.5	33	
Engine Bracket Mounting Bolts	39	4.0	29	
Swing Arm Pivot Shaft Nut	88	9.0	65	

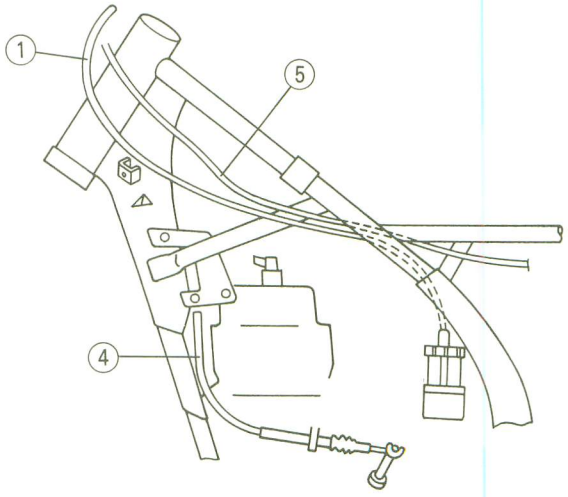
Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Engine Bottom End/Transmission:				
Crankcase Bolts	8.8	0.9	78 in-lb	
Transmission Oil Drain Plug	20	2.0	14.5	
Output Shaft Bearing Retaining Bolts	5.4	0.55	48 in-lb	
Drive Shaft Bearing Retaining Bolts	8.8	0.9	78 in-lb	
Shift Drum Bearing Retaining Bolts	8.8	0.9	78 in-lb	
Shift Drum Operating Plate Bolt	22	2.2	16.0	
Wheels/Tires:				
Front Axle Nut	88	9.0	65	
Rear Axle Nut	98	10.0	72	
Spoke Nipples	Not less than 1.5	Not less than 0.15	Not less than 13 in-lb	
Final Drive:				
Rear Axle Nut	98	10.0	72	
Rear Sprocket Bolts	29	3.0	22	
Brakes:				
Caliper Mounting Bolts (Front, Rear)	25	2.5	18.0	
Brake Hose Banjo Bolts	25	2.5	18.0	
Front Master Cylinder Clamp Bolts	8.8	0.9	78 in-lb	
Brake Disc Mounting Screws (Front, Rear)	23	2.3	16.5	
Caliper Bleed Valves (Front, Rear)	7.8	0.8	69 in-lb	
Brake Pedal Mounting Bolt	8.8	0.9	78 in-lb	
Brake Pad Bolts	18	1.8	13.0	
Rear Master Cylinder Locknut	18	1.8	13.0	
Suspension:				
Front Fork Clamp Bolts: (Upper)	20	2.0	14.5	
(Lower)	24	2.4	17.5	
Front Fork Cylinder Valve Assembly	54	5.5	40	L
Front Fork Top Plug	29	3.0	22	
Push Rod Nut	15	1.5	11	
Swing Arm Pivot Shaft Nut	88	9.0	65	
Rear Shock Absorber Bracket Bolts	39	4.0	29	
Rear Shock Absorber Mounting Bolts	39	4.0	29	
Tie-Rod Mounting Nut (Front, Rear)	81	8.3	60	
Rocker Arm Bracket Mounting Bolt	81	8.3	60	
Rocker Arm Nut	81	8.3	60	
Steering:				
Steering Stem Head Nut	44	4.5	33	
Steering Stem Locknut	3.9	0.4	35 in-lb	
Handlebar Clamp Bolts	25	2.5	18.0	
Front Fork Clamp Bolts: (Upper)	20	2.0	14.5	
(Lower)	24	2.4	17.5	
Frame:				
Side Stand Mounting Bolts	64	6.5	47	
Rear Fender Stay Bolts	44	4.5	33	
Electrical System:				
Flywheel Nut	78	8.0	58	
Stator Mounting Screws	4.9	0.5	43 in-lb	
Magneto Cover Bolts	8.8	0.9	78 in-lb	
Spark Plug	27	2.8	20	

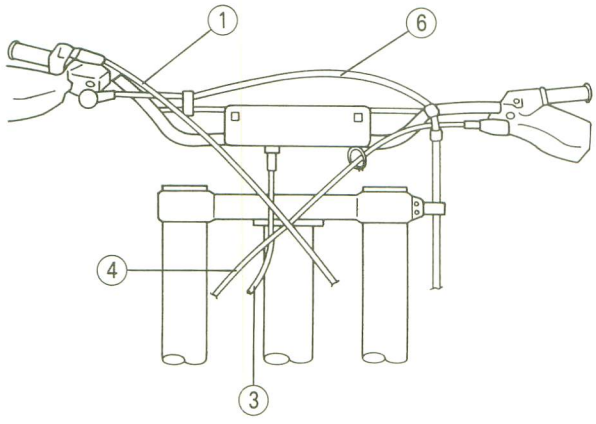
Cable, Harness, Hose Routing

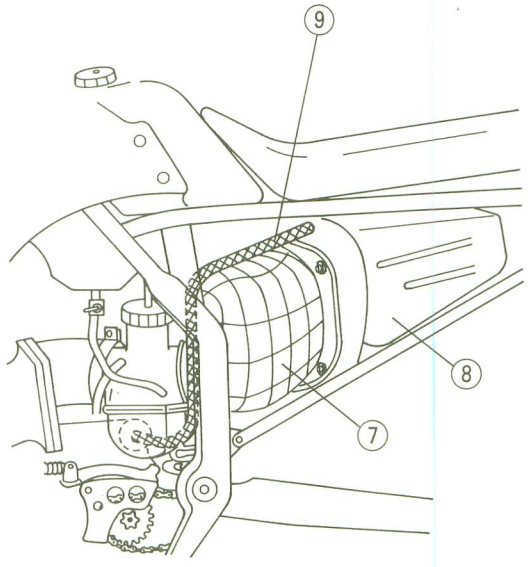


1. Light Switch Lead
2. Engine Stop Button Lead
3. CDI Unit
4. Regulator
5. Radiator
6. Ignition Coil
7. Throttle Cable
8. Clamp
9. Band
10. Stator Lead
11. Harness
12. Rear Fender
13. Frame Pipe
14. Yellow Lead (Route yellow lead inside of frame pipe.)









1. Throttle Cable
2. Clamp
3. Meter Cable
4. Clutch Cable
5. Harness
6. Brake Hose
7. Duct
8. Air Cleaner Case
9. Breather Hose

2

Fuel System

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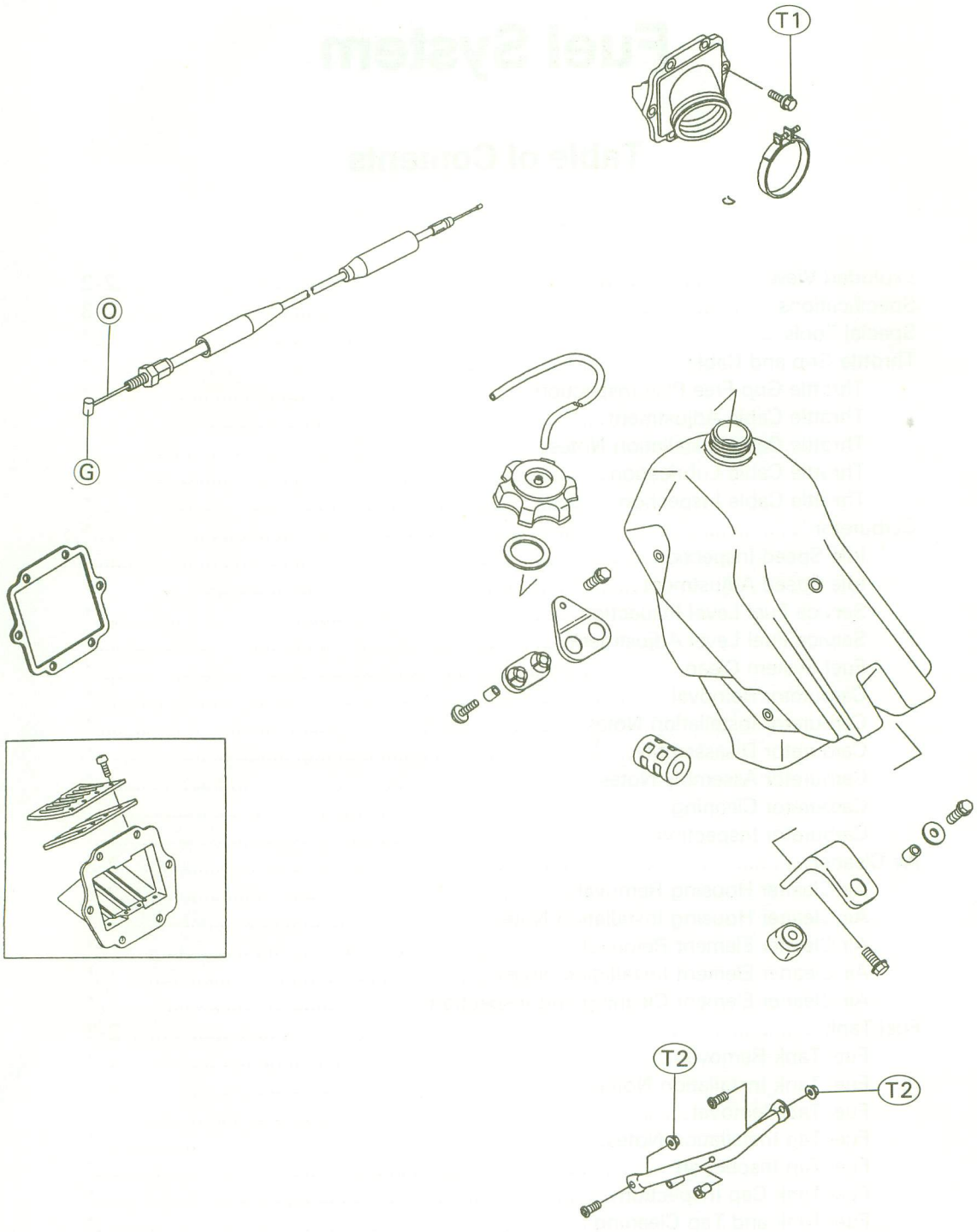
* : Refer to Base Manual

Exploded View



O : Apply oil.
G : Apply grease.
T1 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T2 : 44 N-m (4.5 kg-m, 33 ft-lb)

Specifications

Item	Standard	Service Limit
Carburetor Specifications:		
Make/type	KEIHIN PWK38	– – –
Main jet	165	– – –
Throttle valve cutaway	5	– – –
Jet needle	R1368H	– – –
Jet needle clip position	2th groove from the top	– – –
Slow jet	42	– – –
Air screw	1 1/2 (turn out)	– – –
Service fuel level (below the bottom edge of the carb. body)	−1.0 ±1 mm	– – –
Bore Center	34 mm	– – –
Float height	16 ±1 mm	– – –
Reed Valve:		
Reed warp	– – –	0.2 mm

Air Cleaner

Air Cleaner Housing Removal

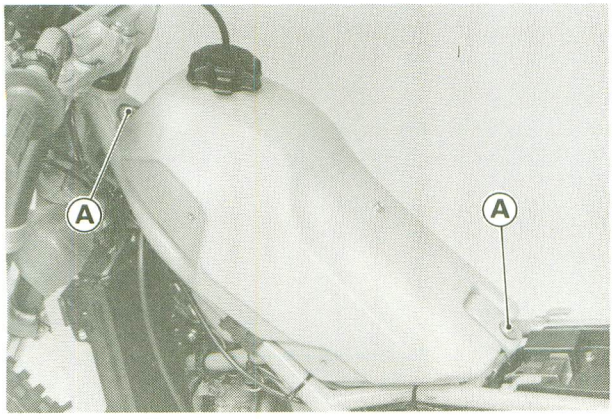
- Loosen the air cleaner duct clamp.
- Remove the following parts.
  - Seat
  - Air Cleaner Housing Cap
  - Side Covers
  - Rear Fender
  - Rear Flap
  - Rear Frame Pipe
- Remove the air cleaner housing.

Fuel Tank

Fuel Tank Removal

Refer to the Base Manual, noting the following.

- Remove the fuel tank mounting bolts.

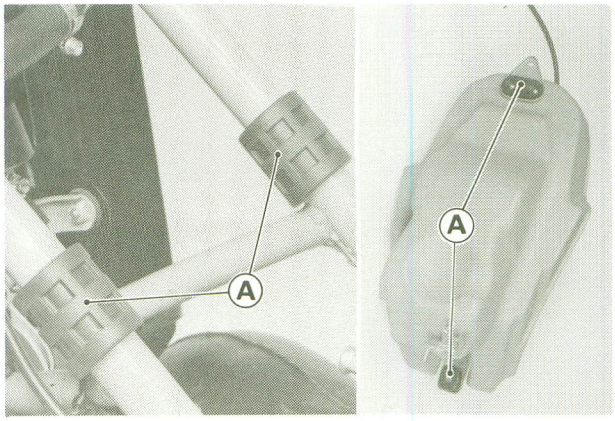


A. Mounting Bolt

Fuel Tank Installation Notes

Refer to the Base Manual, noting the following.

- Check the rubber dampers on the frame and fuel tank.



A. Dampers

Reed Valve

Reed Valve Inspection

Reed Warp

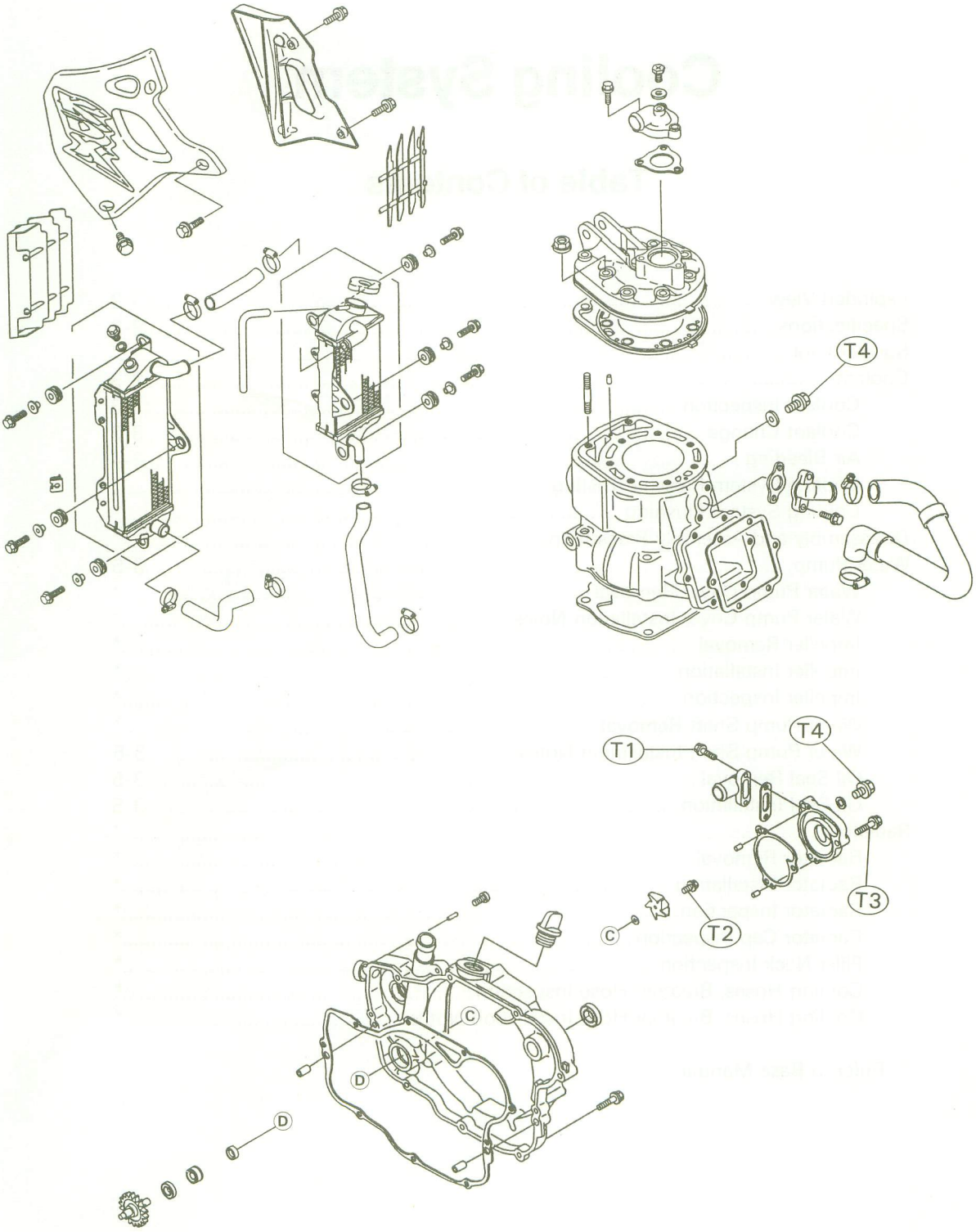
Service Limit: 0.2 mm

Cooling System

Table of Contents

* : Refer to Base Manual

Exploded View



T1 : 4.9 N-m (0.5 kg-m, 43 in-lb)
T2 : 6.9 N-m (0.7 kg-m, 61 in-lb)
T3 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T4 : 22 N-m (2.2 kg-m, 16 ft-lb)

Specifications

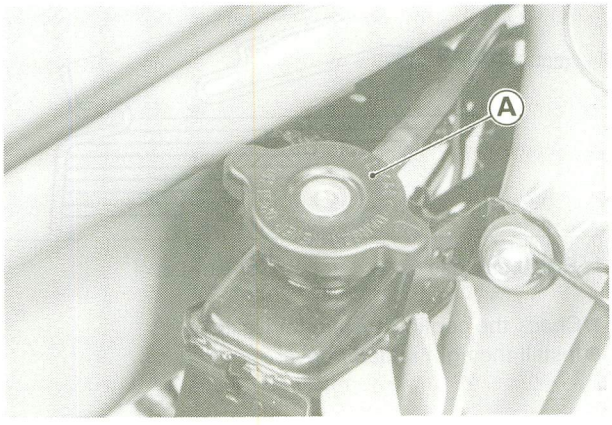
Item		Standard
Coolant:	Type	Permanent type of antifreeze for aluminum engines and radiators
	Color	Green
	Mixed ratio	Soft water 50%, Coolant 50%
	Total amount	1.1 L
Radiator:	Cap relief pressure	95 ~ 125 kPa (0.95 ~ 1.25 kg/cm², 14 ~ 18 psi)

Coolant

Coolant Inspection

Coolant Level:

- Situate the motorcycle so that it is perpendicular to the ground.
- Remove the radiator cap in two steps. First turn the cap counterclockwise to the first stop and wait there for a few seconds. Then push down and turn it further in the same direction and remove the cap.



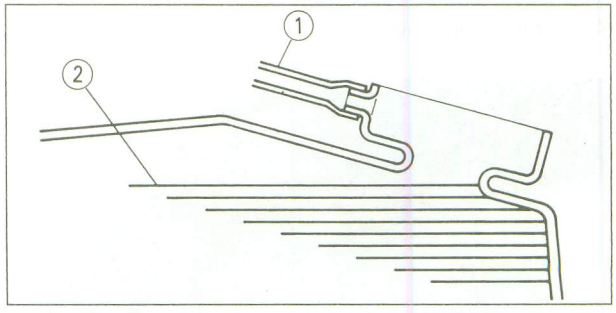
A. Radiator Cap

- The coolant level should be at the bottom of the radiator filler neck.

NOTE

○ *Check the level when the engine is cold (room or ambient temperature).*

Radiator Filler Neck



1. Breather Hose 2. Coolant Level

★If the coolant level is low, add the correct amount of coolant through the filler opening (see Coolant Filling).

Coolant Change

The coolant should be changed periodically to ensure long engine life.

Coolant Draining:

⚠WARNING

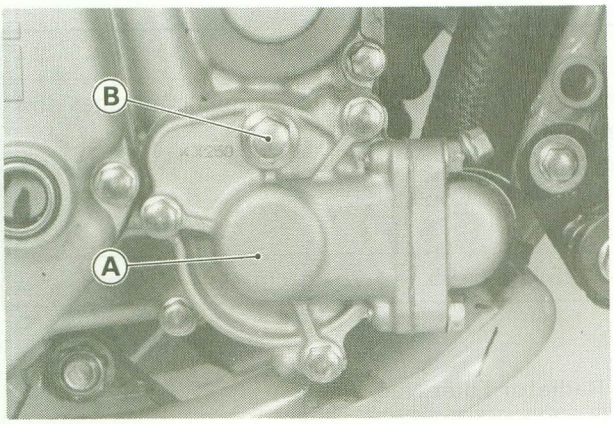
Coolant on tires will make them slippery and can cause an accident and injury. Immediately wipe up or wash away any coolant that spills on the frame, engine or other painted parts.
Since coolant is harmful to the human body, do not use for drinking.

NOTE

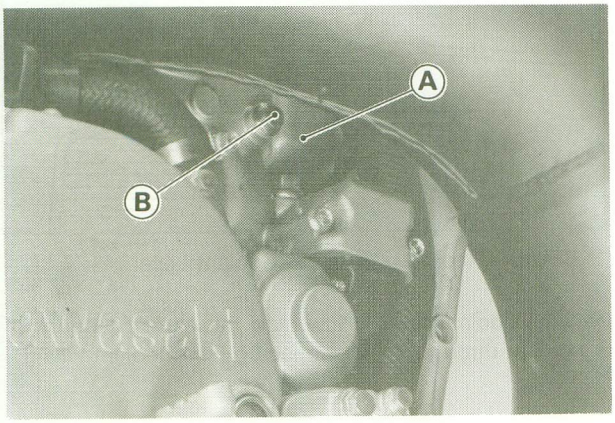
○ *Position the motorcycle upright so that the coolant may be drained easily.*

- Remove the right radiator cover.
- Remove the radiator cap in two steps. First turn the cap counterclockwise to the first stop and wait there for a few seconds. Then push down and turn it further in the same direction and remove the cap.
- Place a container under the coolant drain plugs, and drain the coolant from the radiator and engine by

removing the drain plugs on the water pump cover and the cylinder.



A. Water Pump Cover B. Drain Plug



A. Cylinder B. Drain Plug

Immediately wipe or wash out any coolant that spills on the frame, engine, or wheel.

- Inspect the old coolant for visual evidence of corrosion and abnormal smell (see Coolant Deterioration Inspection).

Coolant Filling:

⚠CAUTION

Use coolant containing corrosion inhibitors made specifically for aluminum engines and radiators in accordance with the instruction of the manufacture's. Soft or distilled water must be used with the antifreeze (see below for antifreeze) in the cooling system. If hard water is used in the system, it causes scale accumulation in the water passages, and considerably reduces the efficiency of the cooling system.

Coolant

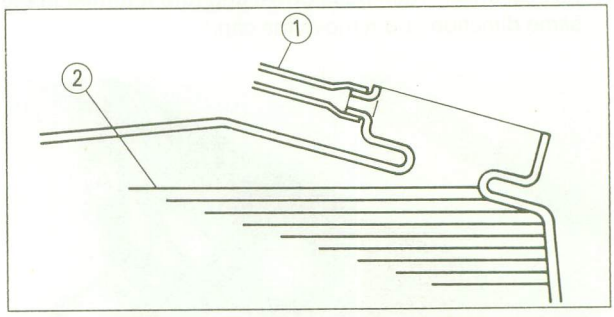
Type	:	**Permanent type antifreeze for aluminum engines and radiators**
Color	:	**Green**
Mixed ratio	:	**Soft water 50%, Coolant 50%**
Freezing point	:	**−35°C (−31°F)**
Total amount	:	**1.1 L**

- Install the drain plug. Always replace the gasket with a new one, if it is damaged.
- Tighten the drain plug to the specified torque (see Exploded View).
- Fill the radiator up to the bottom of the radiator filler neck with coolant, and install the cap, turning it clockwise about 1/4 turn.

NOTE

- *Pour in the coolant slowly so that it can expel the air from the engine and radiator.*
- *The radiator cap must be installed in two steps. First turn the cap clockwise to the first stop. Then push down on it and turn it the rest of the way.*

Radiator Filler Neck



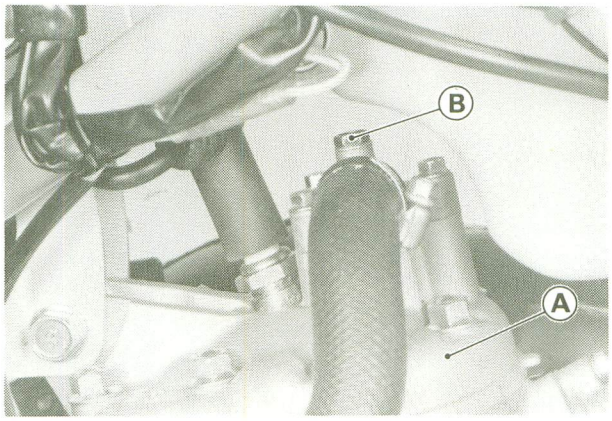
1. Breather Hose 2. Coolant Level

- Check the cooling system for leaks.
- Install the right radiator cover.

Air Bleeding

Before putting the motorcycle into operation, any air trapped in the cooling system must be removed as follows.

- Loosen the air bleeder bolt on the cylinder head until the coolant begins to flow out the air bleeder bolt hole (that is, after all the remaining air has been forced out).



A. Cylinder Head B. Air Bleeder Bolt

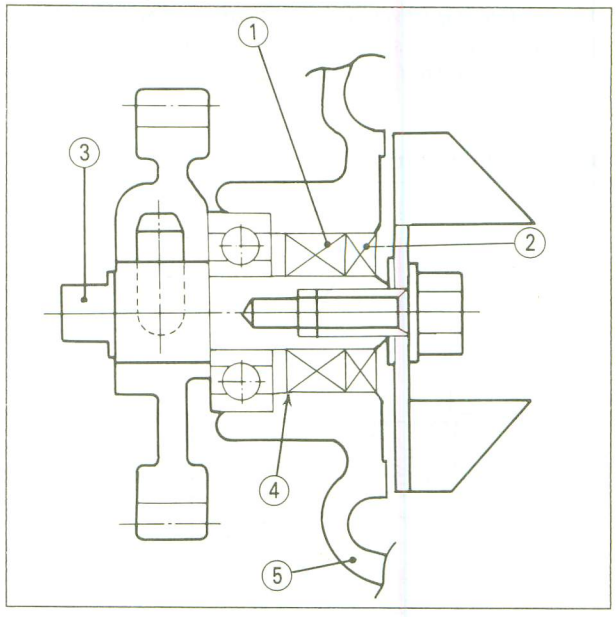
- Tighten the air bleeder bolt.
- Start the engine, warm up the engine thoroughly, and then stop the engine.
- Remove the right radiator cover.
- Remove the radiator cap.
- Check the coolant level after the engine cools down.
- ★If the coolant level is low, add coolant up to the radiator filler neck.
- Install the radiator cap.
- Check the cooling system for leaks.
- Install the right radiator cover.

Water Pump

Water Pump Shaft Installation Notes

Refer to the Base Manual, noting the following.

Water Pump Shaft Installation



1. Oil Seal (Thick)
2. Oil Seal (Thin)
3. Water Pump Shaft
4. Marked Side
5. Right Engine Cover

Oil Seal Removal

- Remove the following parts.
  - Impeller
  - Right Engine Cover (see Right Engine Cover in the Engine Right Side chapter)
  - Water Pump Shaft
- Insert a bar into the water pump shaft hole from the outside of the right engine cover, and remove the ball bearing by tapping evenly around the bearing inner race.
- Insert a bar into the water pump shaft hole from the inside of the right engine cover, and remove the oil seals by tapping evenly around the seal lips.

Oil Seal Installation

⚠CAUTION

If the oil seals or ball bearing is removed, replace all of them with new ones at the same time.

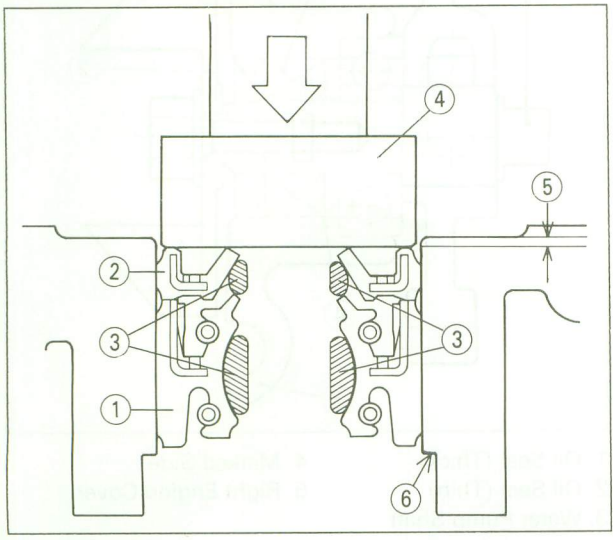
- Be sure to replace the oil seals.
- Apply plenty of high temperature grease to the oil seal lips.

- Press oil seals into the hole from the outside of the right engine cover with a bearing driver.
- Set the oil seal (thick) so that dual lips side face outward and set the oil seal (thin) so that a lip faces outward as shown.

NOTE

○ *Use a bearing driver larger in diameter than the oil seal, and press the oil seal into the hole until the edge of the oil seal is located 0.5 mm deep from the surface of the hole.*

Oil Seals Installation



1. Oil Seal (Thick)
2. Oil Seal (Thin)
3. Apply High Temperature Grease
4. Bearing Driver Set: 57001-1129
5. 0.5 mm
6. Step

- Press the ball bearing into the hole with a bearing driver set (special tool) until the bearing is bottomed against the step.

Engine Top End

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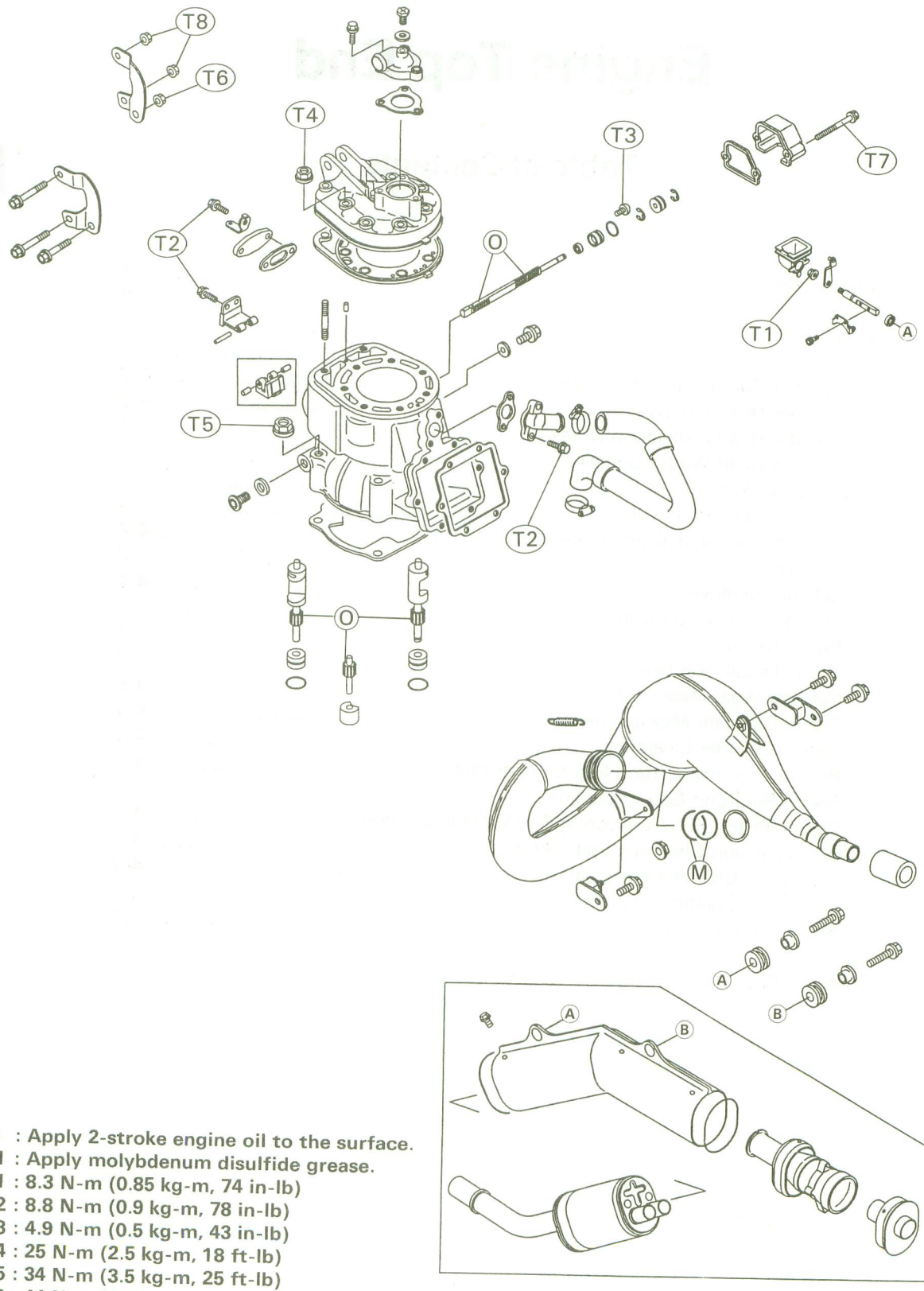
* : Refer to Base Manual

Exploded View



O : Apply 2-stroke engine oil to the surface.
M : Apply molybdenum disulfide grease.
T1 : 8.3 N-m (0.85 kg-m, 74 in-lb)
T2 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T3 : 4.9 N-m (0.5 kg-m, 43 in-lb)
T4 : 25 N-m (2.5 kg-m, 18 ft-lb)
T5 : 34 N-m (3.5 kg-m, 25 ft-lb)
T6 : 44 N-m (4.5 kg-m, 33 ft-lb)
T7 : 25 N-m (0.25 kg-m, 22 in-lb)
T8 : 39 N-m (4.0 kg-m, 29 ft-lb)

Specifications

Item	Standard	Service Limit
Cylinder Head:		
Cylinder compression	(usable range) 1 020 ~ 1 550 kPa (10.2 ~ 15.5 kg/cm², 145 ~ 220 psi)	– – –
Cylinder head warp	– – –	0.03 mm
Cylinder, Piston:		
Cylinder inside diameter	67.405 ~ 67.420 mm	67.49 mm
Piston diameter	67.336 ~ 67.351 mm	67.19 mm
Piston/cylinder clearance	0.054 ~ 0.084 mm	– – –
Piston ring/groove clearance	0.04 ~ 0.08 mm	0.18 mm
Piston ring groove width	1.03 ~ 1.05 mm	1.13 mm
Piston ring thickness	0.97 ~ 0.99 mm	0.90 mm
Piston ring end gap	0.15 ~ 0.35 mm	0.7 mm
Piston pin diameter	17.995 ~ 18.000 mm	17.96 mm
Piston pin hole diameter	18.000 ~ 18.020 mm	18.07 mm
Small end inside diameter	22.003 ~ 22.012 mm	22.05 mm

Cylinder Head

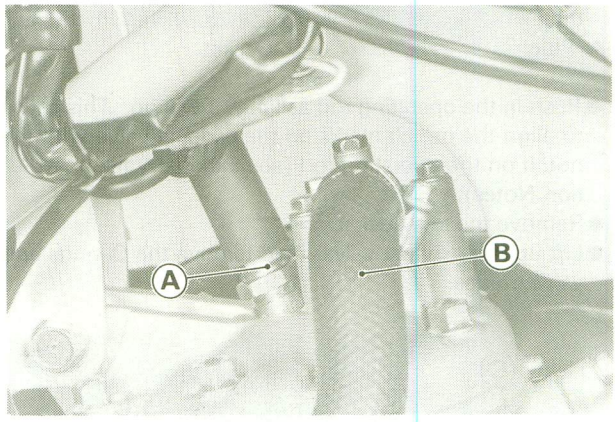
Cylinder Compression Measurement

Cylinder Compression (Usable Range):

1 020 ~ 1 550 kPa
(10.2 ~ 15.5 kg/cm², 145 ~ 220 psi)

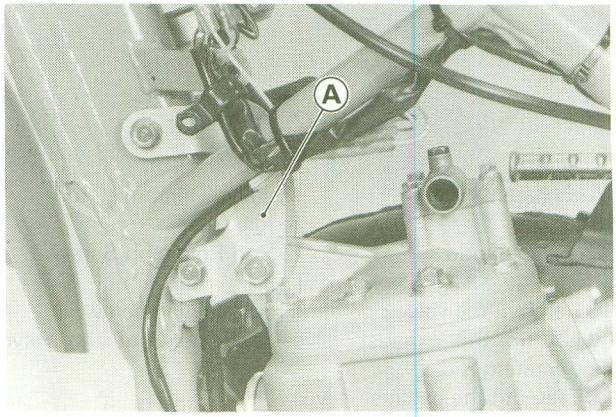
Cylinder Head Removal

- Drain the coolant (see Coolant Change in the Cooling System chapter).
- Remove the following parts:
  - Side Covers
  - Seat
  - Radiator Covers
  - Fuel Tank
  - Muffler
  - Radiator
  - Spark Plug
  - Water Hose



A. Spark Plug B. Water Hose

- Remove the engine mounting brackets on the cylinder head.



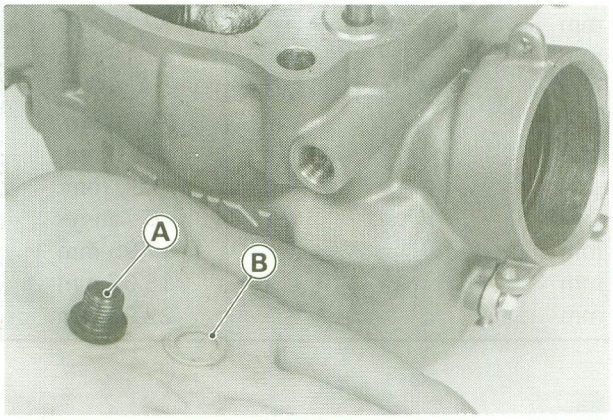
A. Engine Mounting Bracket

- Remove the cylinder head nuts, and take off the cylinder head and gasket.

Exhaust Valve (KIPS)

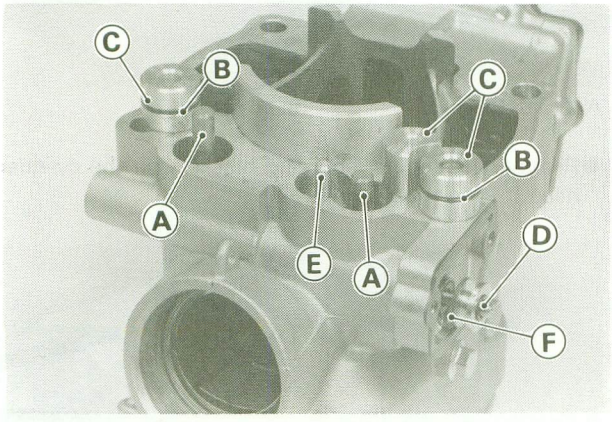
Exhaust Valve Removal

- Remove the cylinder (see Cylinder Removal).
- Up side down the cylinder.
- Remove the plug and gasket.



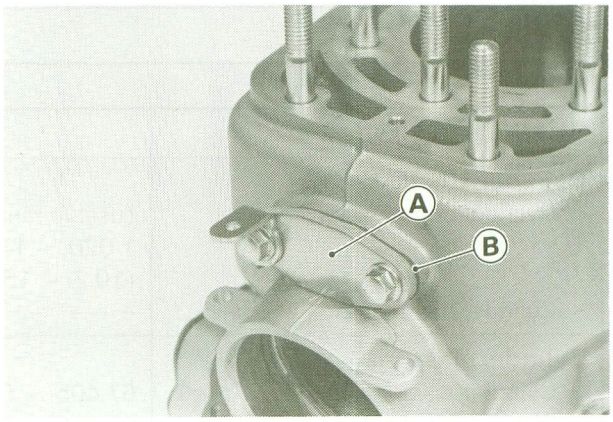
A. Plug B. Gasket

- Push in the operating rod as far as it will go. This cause to align the punch marks on the exhaust valve with the notch on the operating rod (see Exhaust Valve Installation Notes).
- Remove the idle gear.
- Lift up the exhaust valves, and remove the O-rings and valve guides.



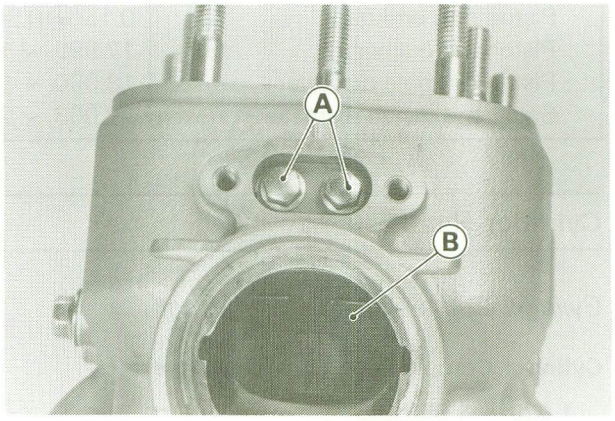
A. Exhaust Valve
B. O-ring
C. Valve Guide
D. Valve Operating Rod
E. Idle Gear
F. Rod Retaining Screw

- Remove the valve operating rod retaining screw.
- Lift up the exhaust valves, and pull out the valve operating rod.
- Take out the exhaust valves.
- Remove the main exhaust valve cover bolts, and remove the cover and gasket.



A. Cover B. Gasket

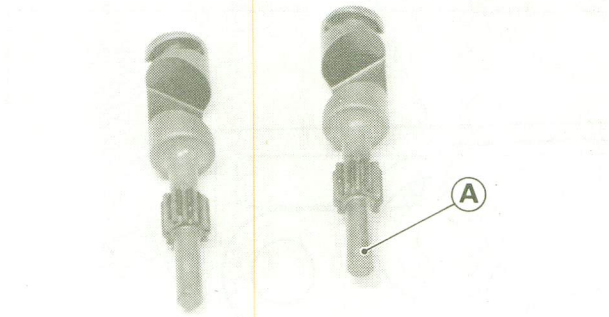
- Remove the mounting bolts, and remove the main exhaust valve.



A. Bolts B. Main Exhaust Valve

Exhaust Valve Installation Notes

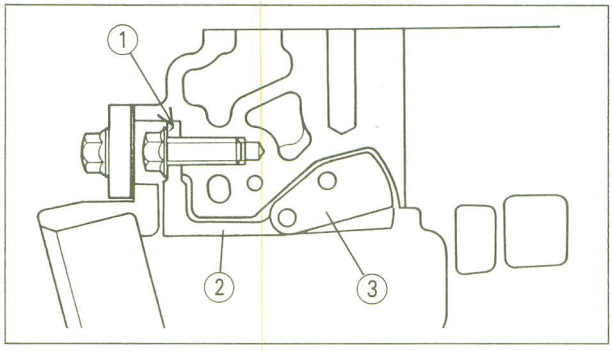
- Installation is the reverse of removal.
- Scrape out any carbon and clean the valves with a high flash-point solvent.
- Check the exhaust valves and valve operating rod for signs of damage. If necessary, replace them with new ones.
- Check the gasket and oil seal on the rod seal plug for signs of damage. If necessary, replace them with new ones.
- Check the O-rings on the valve guides for signs of damage. If necessary, replace them with new ones.
- Be careful not to mix up the right and left exhaust valves. The right valve has an identifying groove.



A. Groove

- Apply a 2-stroke engine oil to the following:
  Exhaust Valve Upper and Lower Journals
  Exhaust Valve Pinions
  Valve Guides (inside)
  Valve Operating Rod Journals
  Valve Operating Rod Rack
- Apply a high temperature grease to the oil seal lip on the operating rod.
- Adjust the exhaust valve position in accordance with the following procedure.

○ Tighten the main exhaust valve bracket mounting bolts securely. Check that there is no gap between the bracket and cylinder.



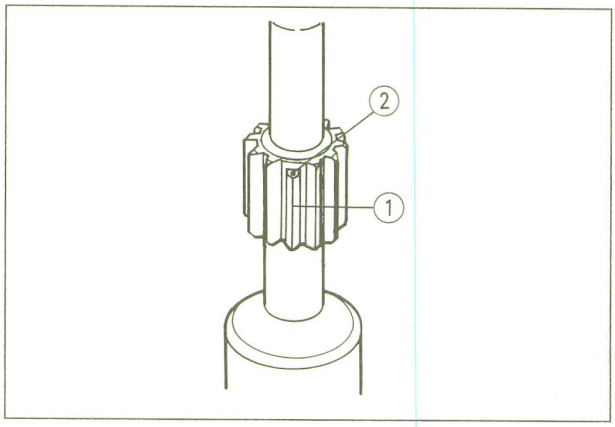
1. No Gap
2. Bracket
3. Main Exhaust Valve

○ Engage the valve pinions with the rod rack so that the punch marks on the punch are positioned toward the front of the engine. The poncho marks on the valve pinions should align with the groove on the rod.

NOTE

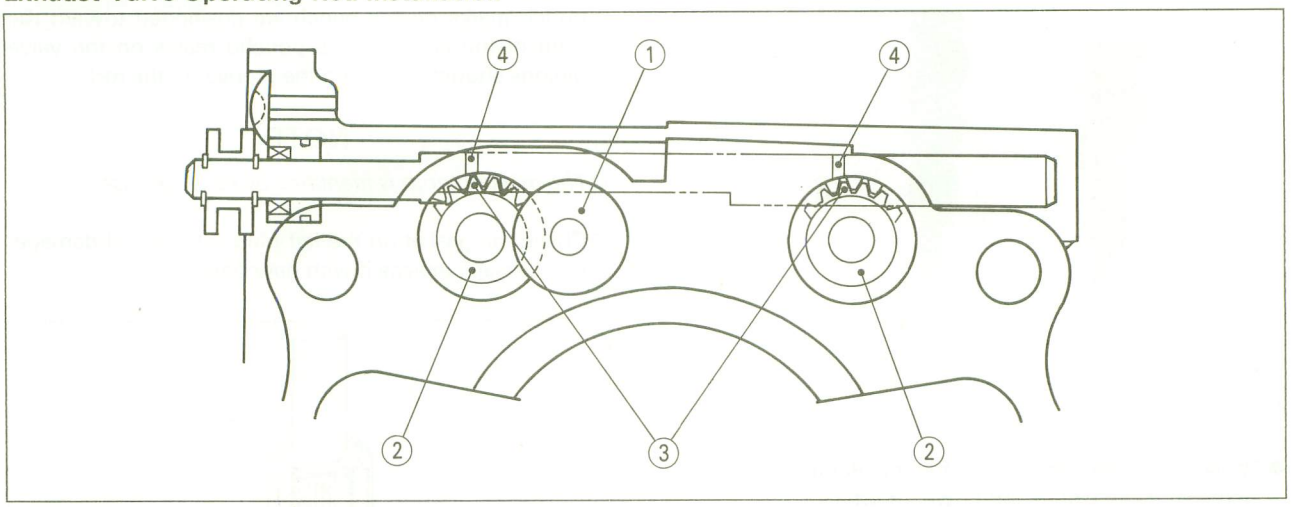
○ *The marked tooth is identified by its shape also.*

○ Check the gasket on the left plug for signs of damage. If necessary, replace it with new one.



1. Marked Tooth
2. Punch Mark (Red Paint)

Exhaust Valve Operating Rod Installation

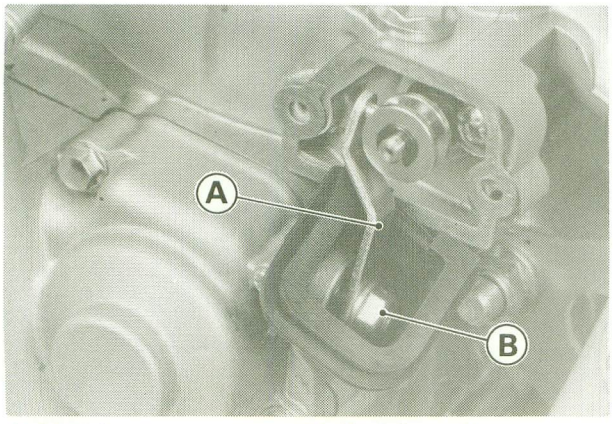


1. Idle Gear
2. Right and Left Exhaust Valve
3. Punch Mark (Red Paint)
4. Groove

Cylinder, Piston

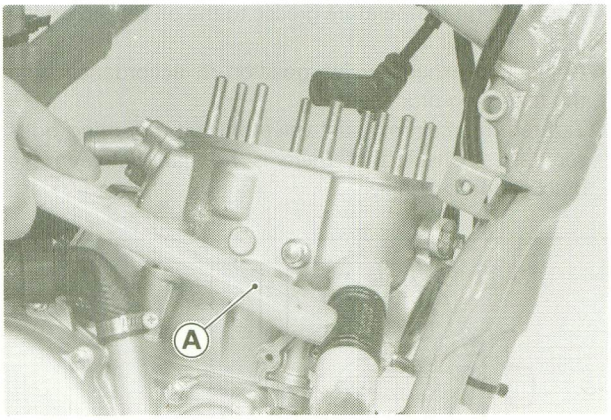
Cylinder Removal

- Drain the coolant.
- Remove the cylinder head (see Cylinder Head Removal).
- Loosen the clamps, and pull the carburetor out of the holder and the air cleaner duct.
- Remove the right cover at the cylinder.
- Remove the shaft lever nut, and take off the shaft lever.



A. Shaft Lever
B. Shaft Lever Nut

- Remove the cylinder nuts.
- Lift off the cylinder, and remove the cylinder base gasket. If necessary, tap lightly around the base of the cylinder with a plastic mallet, taking care not to damage the cylinder.



A. Plastic Mallet

- Remove the carburetor holder mounting bolts, and pull the holder and reed valve out to the rear.

Cylinder Wear Inspection

Cylinder Inside Diameter

Standard : **67.405 ~ 67.420 mm, and less than 0.01 mm difference between any two measurements.**

Service Limit : **67.49 mm, or more than 0.05 mm difference between any two measurements.**

Piston Diameter Measurement

Piston Diameter

Standard: 67.336 ~ 67.351 mm
Service Limit: 67.19 mm

Piston/Cylinder Clearance

Piston/Cylinder Clearance

0.054 ~ 0.084 mm

Piston Ring, Piston Ring Groove Inspection

Piston Ring/Groove Clearance

Standard: 0.04 ~ 0.08 mm
Service Limit: 0.18 mm

Piston Ring Thickness (Second Ring)

Standard: 0.97 ~ 0.99 mm
Service Limit: 0.9 mm

Piston Ring Groove Width (Second Ring)

Standard: 1.03 ~ 1.05 mm
Service Limit: 1.13 mm

Piston, Piston Pin, Connecting Rod Wear Inspection

Piston Pin Diameter

Standard: 17.995 ~ 18.00 mm
Service Limit: 17.96 mm

Piston Pin Hole Diameter

Standard: 18.000 ~ 18.020 mm
Service Limit: 18.07 mm

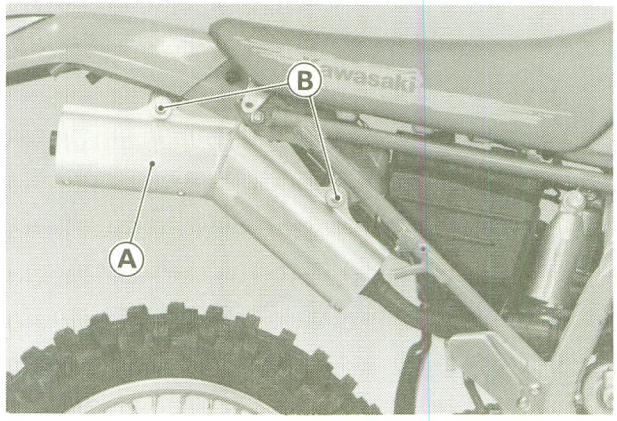
Small End Inside Diameter

Standard: 22.003 ~ 22.012 mm
Service Limit: 22.05 mm

Muffler (Expansion Chamber, Spark Arrester)

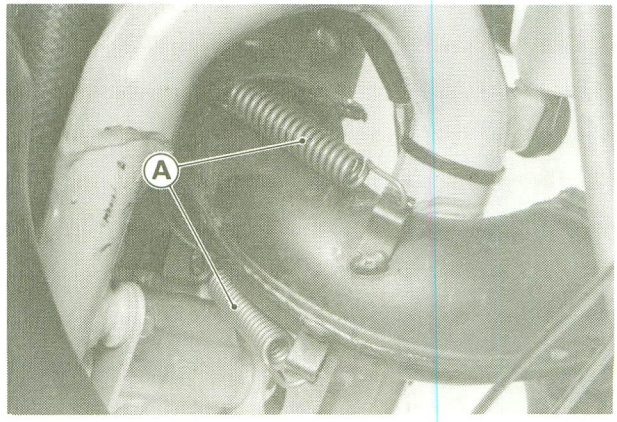
Expansion Chamber Removal

- Remove the right side cover.
- Remove the spark arrester mounting bolts and pull the spark arrester off toward the rear.

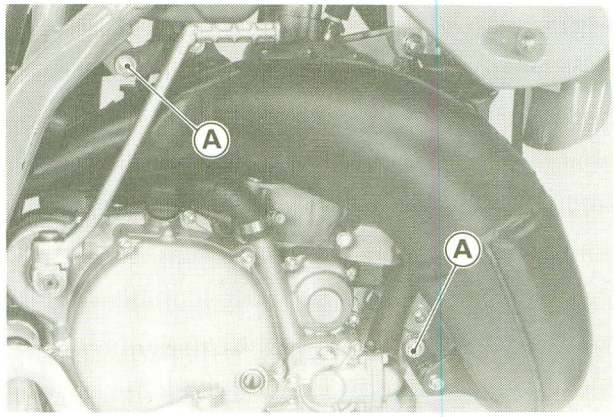


A. Spark Arrester B. Mounting Bolts

- Remove the exhaust pipe holding springs.
- Remove the muffler damper mounting bolts, and pull off the expansion chamber to the frontward.



A. Exhaust Pipe Holding Springs



A. Muffler Damper Mounting Bolts

Engine Right Side

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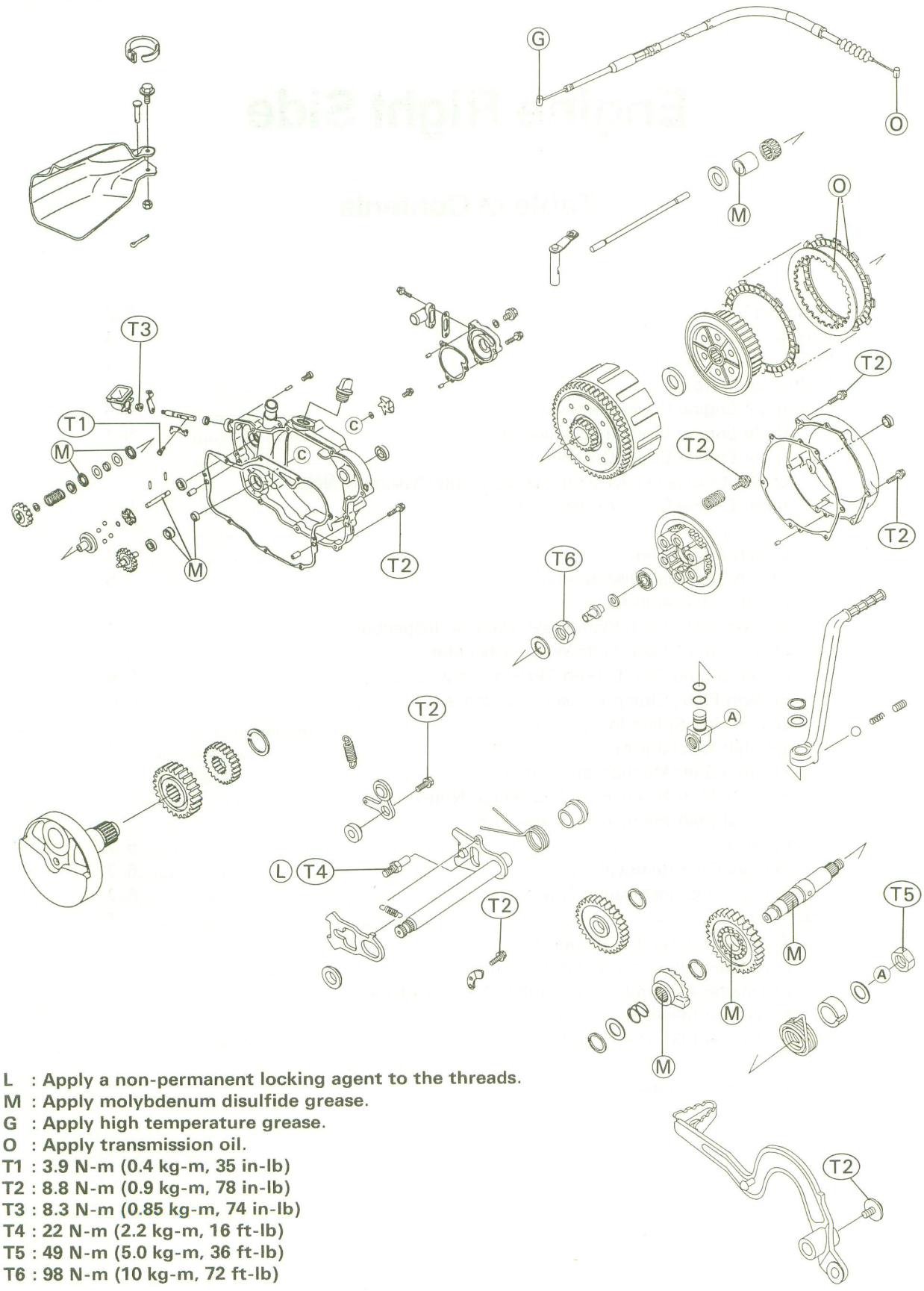
* : Refer to Base Manual

Exploded View



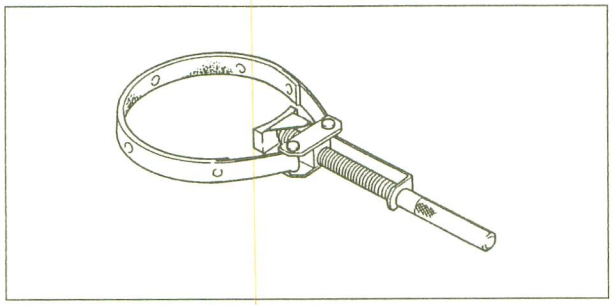
L : Apply a non-permanent locking agent to the threads.
M : Apply molybdenum disulfide grease.
G : Apply high temperature grease.
O : Apply transmission oil.
T1 : 3.9 N-m (0.4 kg-m, 35 in-lb)
T2 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T3 : 8.3 N-m (0.85 kg-m, 74 in-lb)
T4 : 22 N-m (2.2 kg-m, 16 ft-lb)
T5 : 49 N-m (5.0 kg-m, 36 ft-lb)
T6 : 98 N-m (10 kg-m, 72 ft-lb)

Specifications

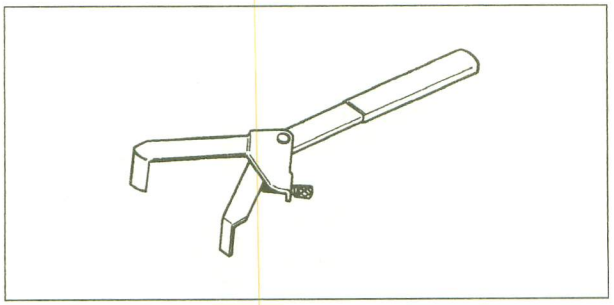
Item	Standard	Service Limit
Clutch:		
Clutch lever free play (lever end)	10 ~ 20 mm	– – –
Clutch spring free length	38.7 mm	37.2 mm
Friction plate thickness	2.92 ~ 3.08 mm	2.7 mm
Clutch plate thickness	1.46 ~ 1.74 mm	1.3 mm
Friction plate/clutch housing clearance	0.20 ~ 0.50 mm	0.8 mm
Friction plate warp	not more than 0.15 mm	0.3 mm
Clutch plate warp	not more than 0.2 mm	0.3 mm

Special Tools

Flywheel Holder: 57001-1313



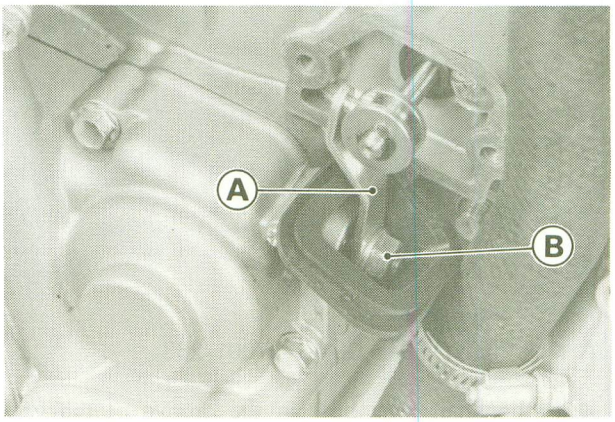
Clutch Holder: 57001-1243



Right Engine Cover

Right Engine Cover Removal

- Drain the transmission oil (see Transmission Oil Change in the Engine Bottom End/Transmission chapter).
- Drain the coolant (see Coolant Change in the Cooling System chapter).
- Remove the following parts.
  - Kick Pedal
  - Brake Pedal
  - Expansion Chamber
  - Water Pump Cover
  - Impeller
- Pull off the water pump hose lower end.
- Remove the right cover at the cylinder.
- Remove the shaft lever nut, and take off the shaft lever.



A. Shaft Lever B. Shaft Lever Nut

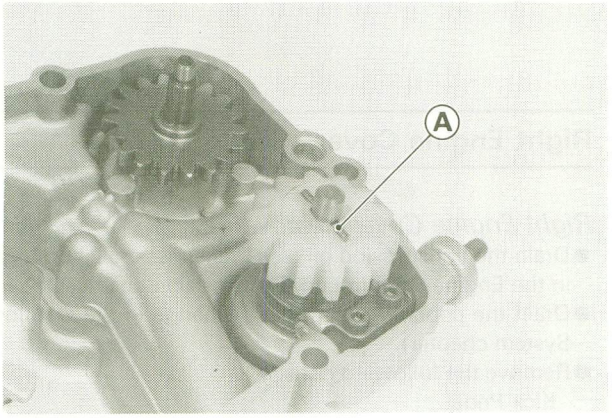
- Take off the oil filler cap, and remove the right engine cover and bolts.

Right Engine Cover Installation Notes

- Installation is the reverse of removal. Note the following.
- There are two knock pins on the mating surfaces of the crankcase and right engine cover.
- In case the exhaust advancer assembly has been removed, install it and turn the gear so as to level the gear drive pin.

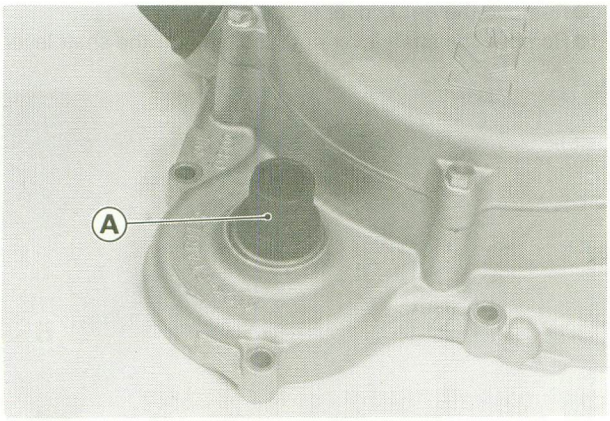
⚠CAUTION

If the gear drive pin is not positioned level, it may fall out when installing the right engine cover.



A. Gear Drive Pin (level position)

- Install the right engine cover using the kick shaft oil seal guide (special tool) to protect the cover oil seal.

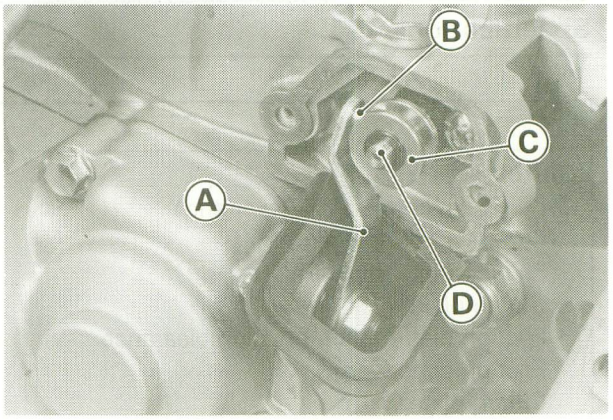


A. Kick Shaft Oil Seal Guide: 57001-263

- Fit the shaft lever boss in the groove of the valve operating rod collar, and install the shaft lever on the lever shaft. Tighten the shaft lever nut to the specified torque (see Exploded View).

NOTE

○ *Tighten the shaft lever nut while holding the valve operating rod all the way in.*

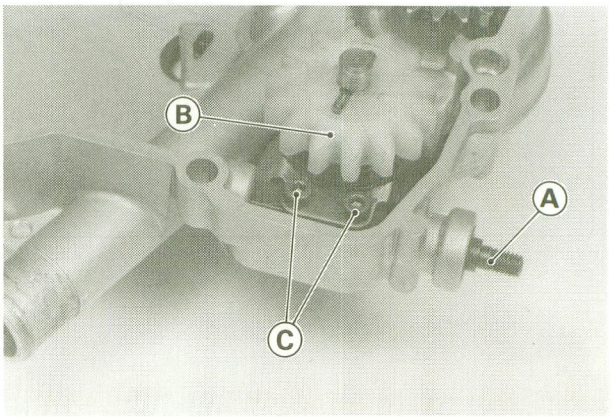


A. Shaft Lever
B. Boss
C. Collar
D. Valve Operating Rod

- Tighten the water pump impeller bolt to the specified torque (see Exploded View).
- Apply grease to the inside of the brake pedal boss.
- Tighten the brake pedal mounting bolt to the specified torque (see Exploded View).
- Fill the cooling system (see Coolant Filling in the Cooling System chapter).
- Fill the transmission with oil (see Transmission Oil Change in the Engine Bottom End/Transmission chapter).

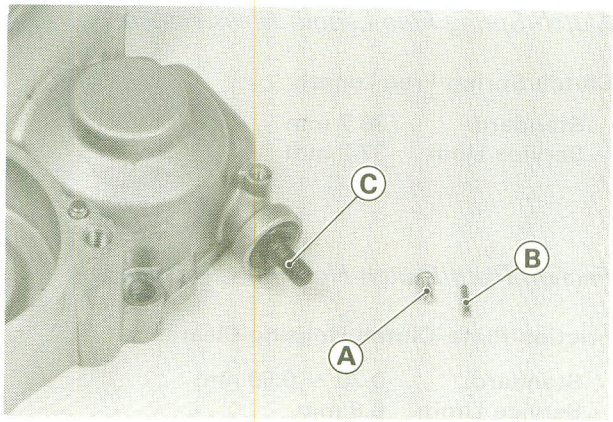
Right Engine Cover Disassembly

- Remove the right engine cover.
- Turn the lever shaft to the right, and remove the exhaust advancer assembly.
- Remove the Allen bolts, and take off the advancer lever.



A. Lever Shaft
B. Exhaust Advancer Assembly
C. Allen Bolts

- Remove the plug screw and take out the positioning pin.
- Pull the lever shaft out of the right engine cover.

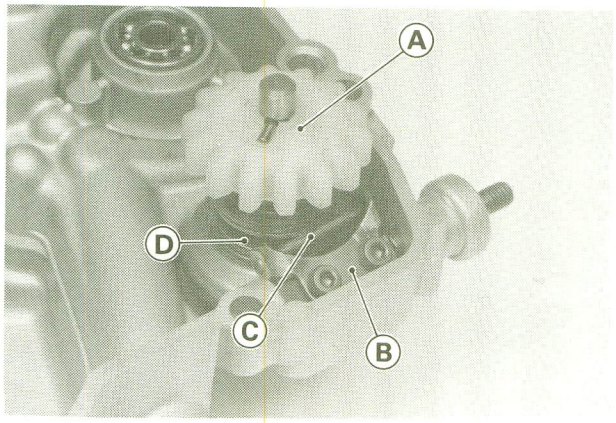


A. Plug Screw
B. Positioning Pin
C. Lever Shaft

- Pull off the water pump shaft (see Water Pump Shaft Removal in the Cooling System chapter).

Right Engine Cover Assembly Notes

- Assembly is the reverse of disassembly.
- Apply high temperature grease to the oil seal lips before inserting the lever shaft.
- Apply molybdenum disulfide grease to the surface of the lever shaft, and insert the lever shaft into the right engine cover hole.
- Tighten the advancer lever mounting Allen bolts to the specified torque (see Exploded View).
- Fit the advancer lever pin into the groove on the exhaust advancer assembly, and install the assembly in the engine cover while turning the lever shaft to the left.



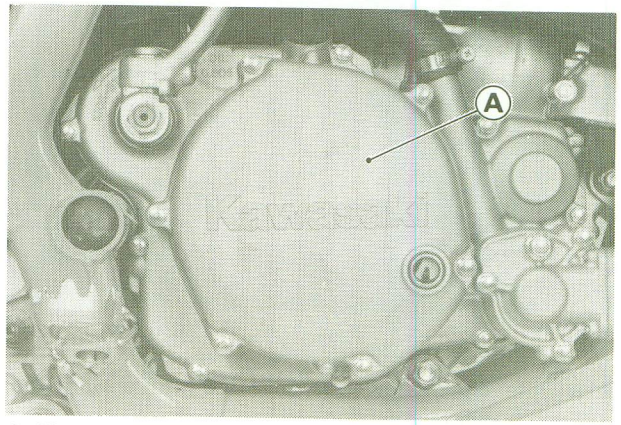
A. Exhaust Advancer Assembly
B. Advancer Lever
C. Pin
D. Groove

- Tighten the exhaust valve advancer shaft plug screw securely.

Clutch

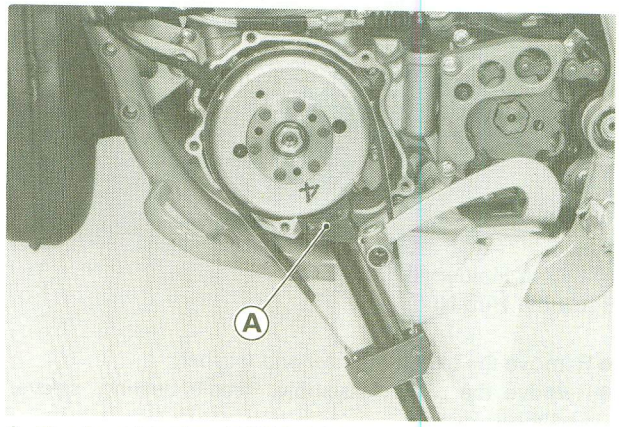
Clutch Removal/Disassembly

- Remove the brake pedal.
- Remove the clutch cover.

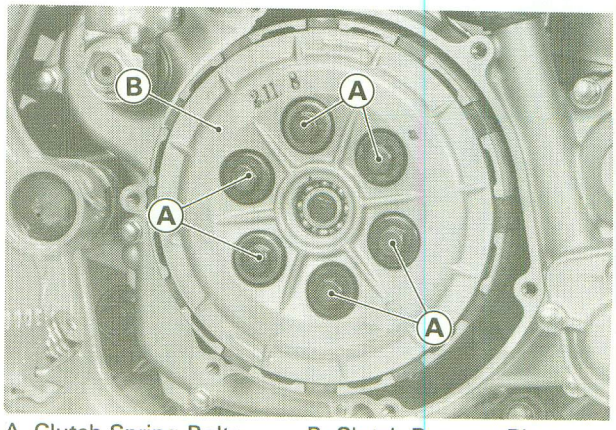


A. Clutch Cover

- Remove the magneto cover.
- Use the flywheel holder (special tool) to prevent the clutch from rotating, remove the clutch spring bolts and spring.

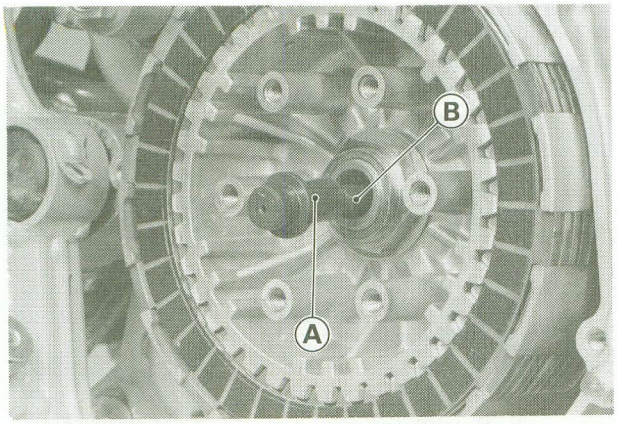


A. Flywheel Holder: 57001-1313



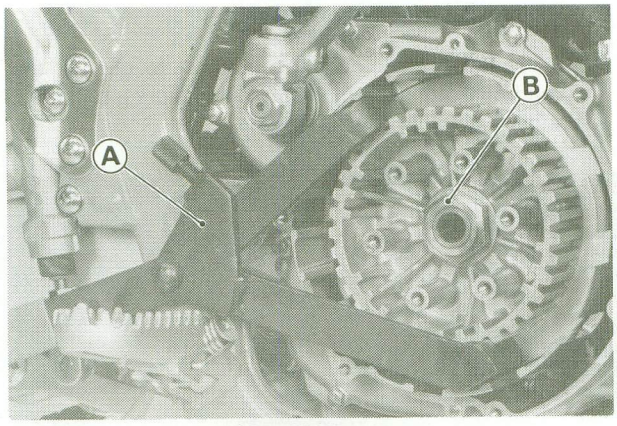
A. Clutch Spring Bolts
B. Clutch Pressure Plate

● Remove the clutch pressure plate, flat washer (if provided), push rod holder, friction plates, clutch plates, and push rod.



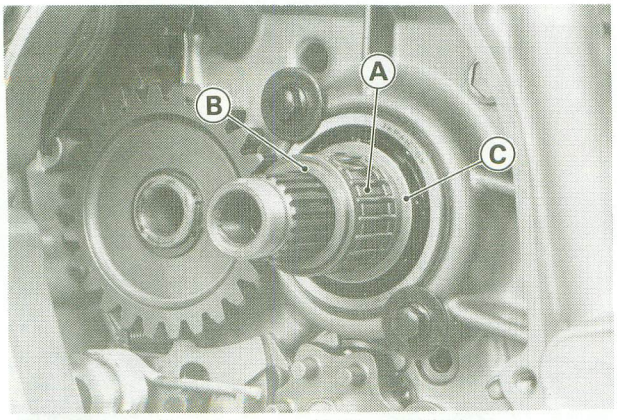
A. Push Rod Holder B. Push Rod

● Use the clutch holder (special tool) to prevent the clutch hub from rotating.



A. Clutch Holder: 57001-1243
B. Clutch Hub Nut

● Remove the clutch hub nut and washer.
● Remove the clutch assembly, needle bearing, sleeve, and thrust washer.



A. Needle Bearing C. Thrust Washer
B. Sleeve

Clutch Spring Free Length Measurement

Clutch Spring Free Length

Standard:	**38.7 mm**
Service Limit:	**37.2 mm**

Friction Plate/Clutch Housing Clearance

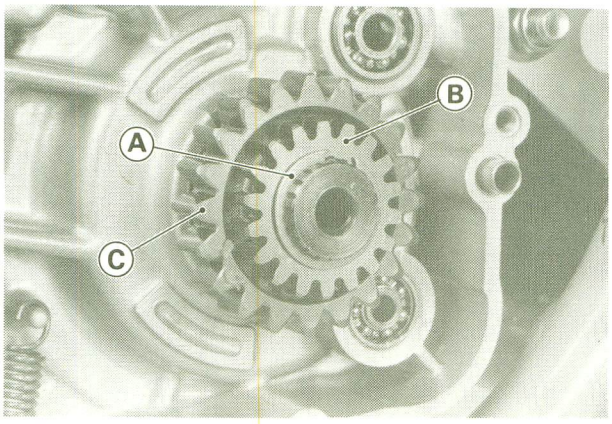
Friction Plate/Clutch Housing Clearance

Standard:	**0.20 ~ 0.50 mm**
Service Limit:	**0.8 mm**

Primary Gear

Primary Gear Removal

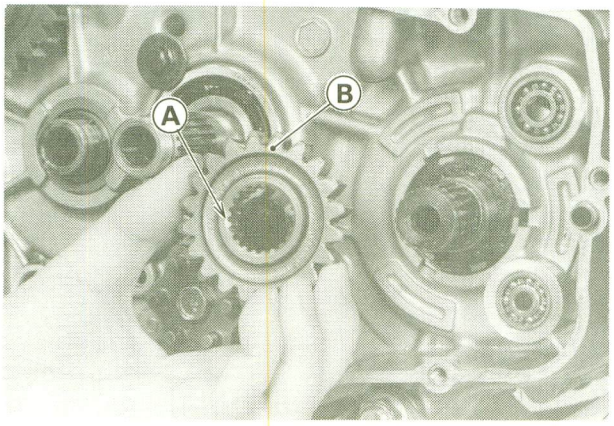
- Remove the right engine cover (see Right Engine Cover Removal).
- Remove the clutch (see Clutch Removal).
- Remove the circlip, and take off the water pump drive gear and primary gear.



A. Circlip
B. Water Pump Drive Gear
C. Primary Gear

Primary Gear Installation Notes

- Installation is the reverse of removal.
- Install the primary gear so that chamfered side faces outward.



A. Chamfered Side
B. Primary Gear

- Replace the old circlip with a new one.

Engine Removal / Installation

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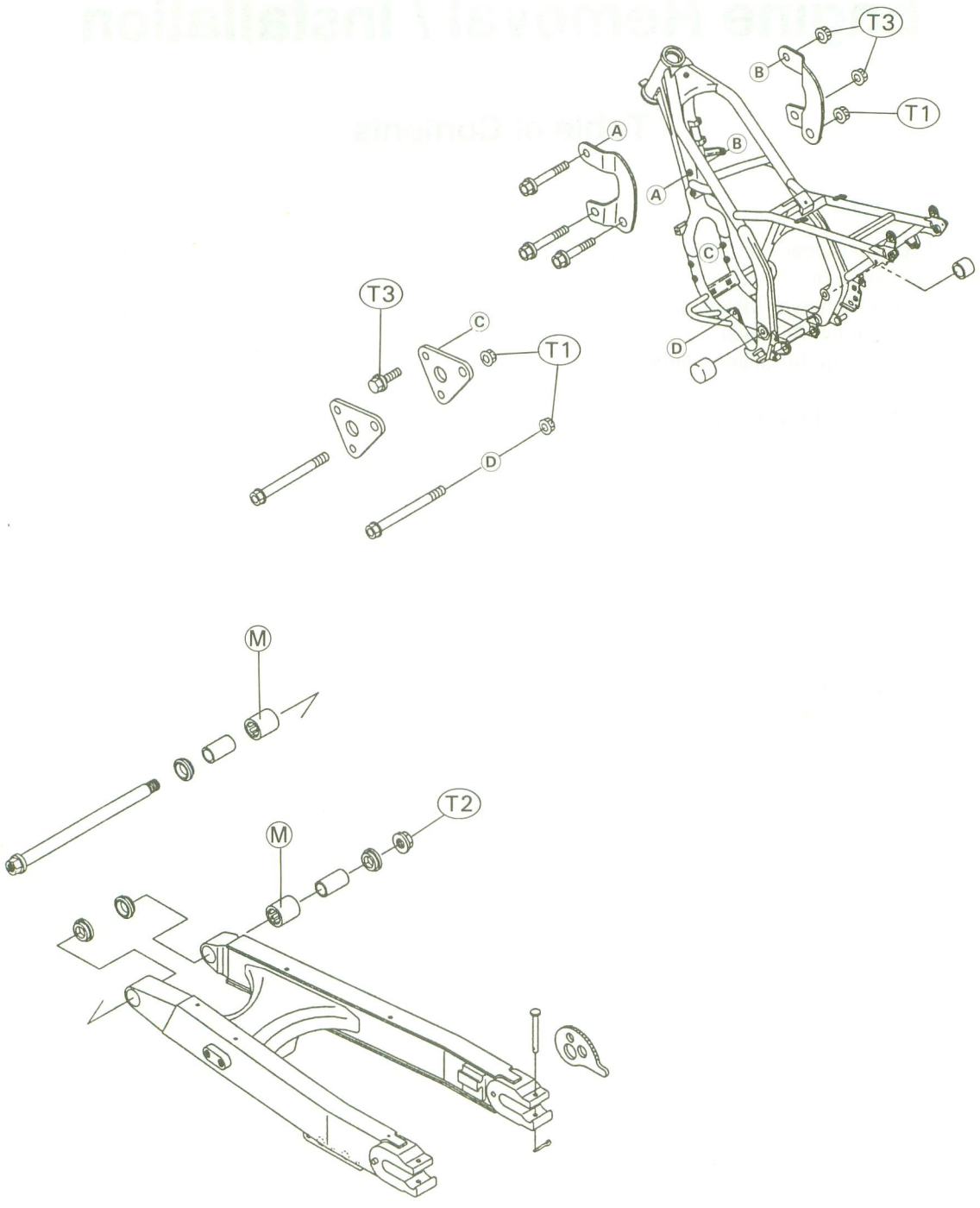
* : Refer to Base Manual

Exploded View

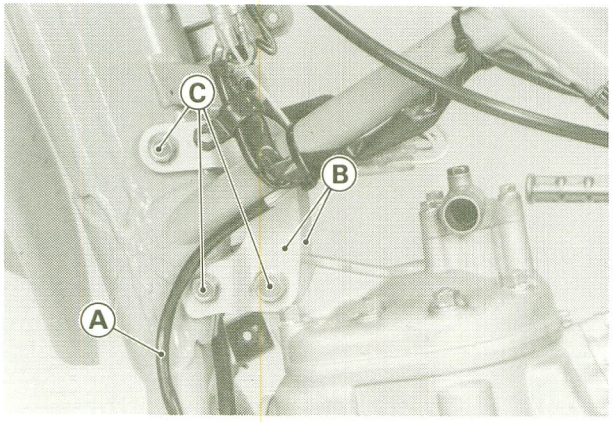


M : Apply molybdenum disulfide grease.
T1 : 44 N-m (4.5 kg-m, 33 ft-lb)
T2 : 88 N-m (9.0 kg-m, 65 ft-lb)
T3 : 39 N-m (4.0 kg-m, 29 ft-lb)

Engine Removal/Installation

Engine Removal

- Drain the transmission oil (see Transmission Oil Change in the Engine Bottom End/Transmission chapter).
- Drain the coolant (see Coolant Change in the Cooling System chapter).
- Remove the following parts.
  - Right and Left Side Covers
  - Radiator Covers
  - Seat
  - Fuel Tank
  - Expansion Chamber
  - Radiator
  - Spark Plug
  - Cooling Hoses
  - Carburetor (with Cables and Hoses)
  - Clutch Cable Lower End
  - Engine Sprocket Cover
  - Drive Chain and Engine Sprocket
  - Shift Pedal
  - Brake Pedal
- Disconnect the magneto output lead, and free the leads from the frame.
- Remove the engine brackets and mounting bolts.



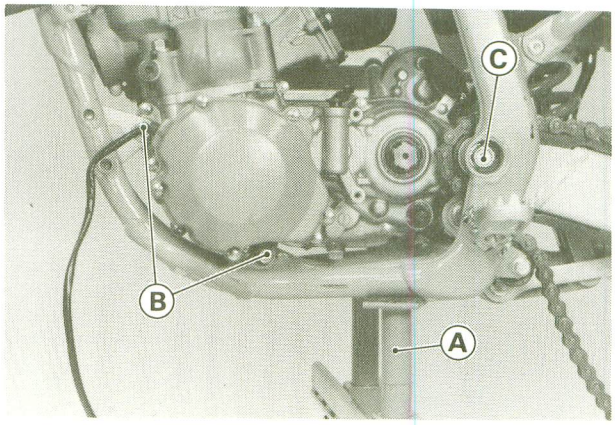
A. Magneto Lead
B. Engine Brackets
C. Mounting Bolts

- Place a jack (special tool) under the frame to lift the motorcycle off the ground, and put blocks under the front and rear tires to steady the motorcycle.

⚠WARNING

The swing arm pivot shaft also serves as the engine mounting bolt. Take precautions to insure the frame is well supported, and that the motorcycle will not fall over when the pivot shaft is removed.

- Remove the engine mounting bolts.
- Pull out the swing arm pivot shaft.
- Lift the engine out to the right.



A. Jack: 57001-1238
B. Engine Mounting Bolts
C. Swing Arm Pivot Shaft

Engine Bottom End / Transmission

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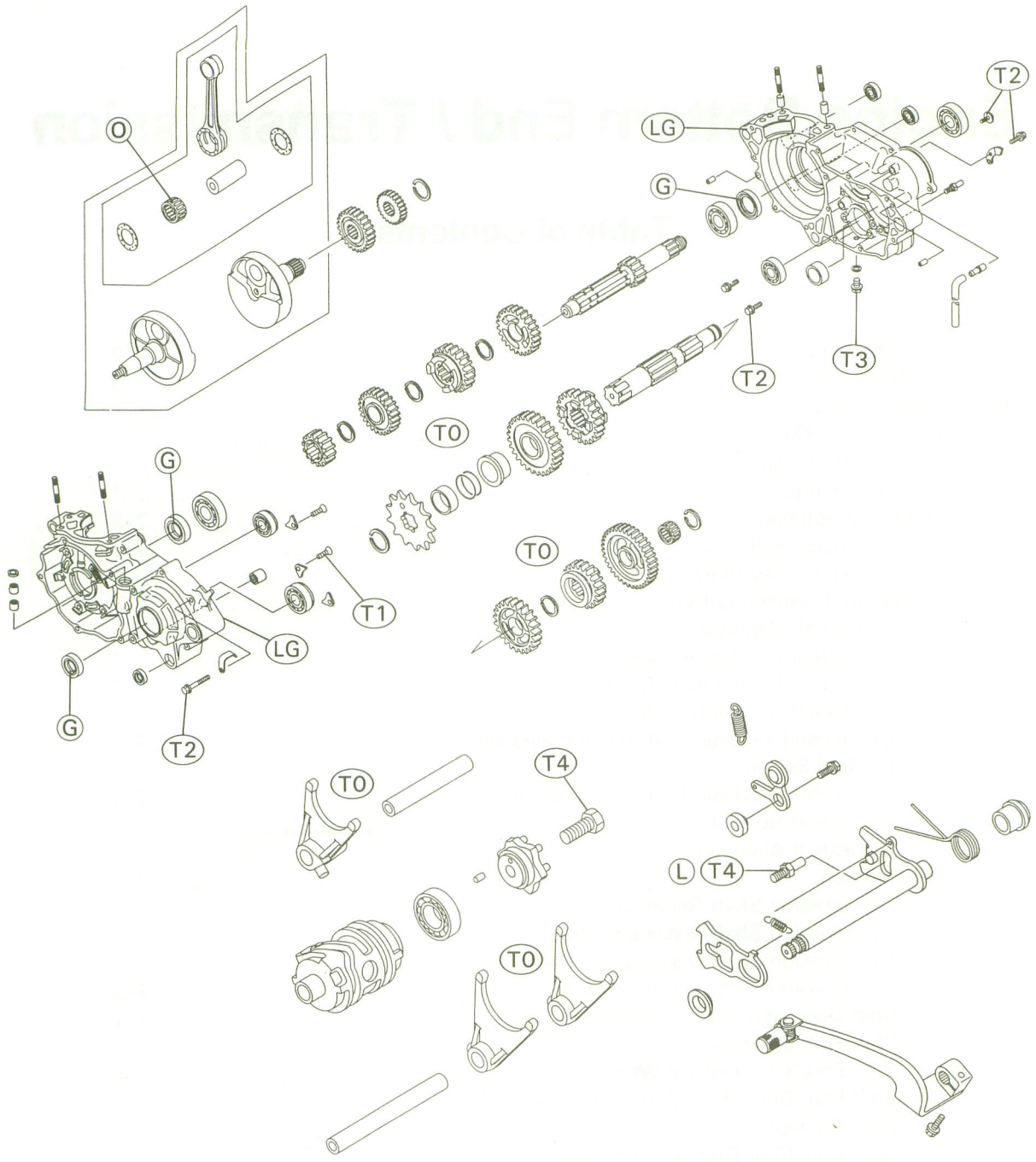
* : Refer to Base Manual

Exploded View



O : Apply 2-stroke engine oil
TO: Apply transmission oil to the transmission gears and shift forks, etc.
G : Apply high temperature grease.
LG: Apply liquid gasket to the left and right case mating surface.
L : Apply a non-permanent locking agent to the threads.

T1 : 5.4 N-m (0.55 kg-m, 48 in-lb)
T2 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T3 : 20 N-m (2.0 kg-m, 14.5 ft-lb)
T4 : 22 N-m (2.2 kg-m, 16.0 ft-lb)

Specifications

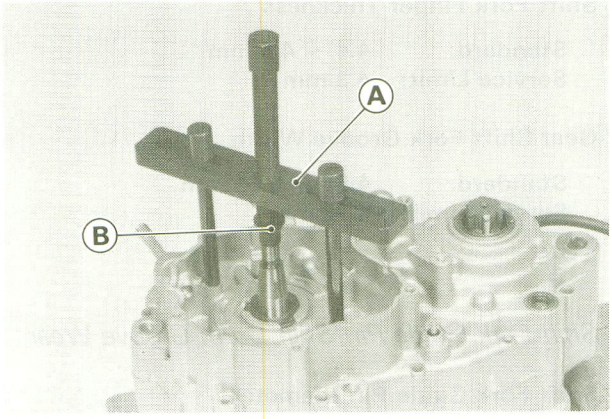
Item	Standard	Service Limit
Crankshaft, Connecting Rod:		
Connecting rod:		
Bend and twist	not more than 0.03 mm/100 mm	0.20 mm/100 mm
Big end radial clearance	0.037 ~ 0.049 mm	0.10 mm
Big end side clearance	0.45 ~ 0.55 mm	0.80 mm
Crankshaft runout	under 0.03 mm	0.05mm
Transmission:		
Shift fork finger thickness	4.4 ~ 4.5 mm	4.3 mm
Gear shift fork groove width	4.55 ~ 4.65 mm	4.75 mm
Shift fork guide pin diameter	5.9 ~ 6.0 mm	5.8 mm
Shift drum groove width	6.05 ~ 6.20 mm	6.30 mm

Crankcase Splitting

Crankcase Splitting

Refer to the Base Manual, noting the following.

- Install the crankcase splitting tool and adapter (special tools) into the left side of the crankcase. Be certain to screw the tool in all the way.



A. Crankcase Splitting Tool Set: 57001-1098
B. Adapter: 57001-136

Crankshaft, Connecting Rod

Connecting Rod Big End Radial Clearance

Connecting Rod Big End Radial Clearance

Standard: 0.037 ~ 0.049 mm
Service Limit: 0.1 mm

Connecting Rod Big End Side Clearance

Connecting Rod Big End Side Clearance

Standard: 0.45 ~ 0.55 mm
Service Limit: 0.80 mm

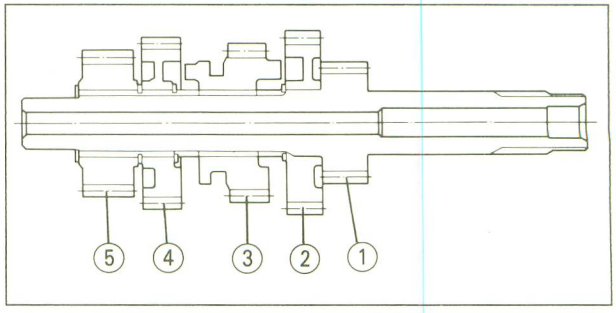
Transmission

Transmission Shaft Assembly Notes

Refer to the Base Manual, noting the following.

- The drive shaft gears can be identified by size; the smallest diameter gear is 1st gear, and the largest is 5th. Be sure that all parts are put back in the correct sequence, facing the proper direction, and that all circlips and the washer are properly in place.

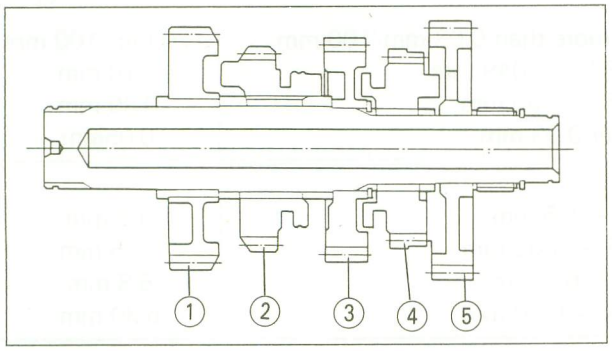
Drive Shaft Gears



1. 1st Gear (13T; part of drive shaft)
2. 5th Gear (28T; dog recesses face left)
3. 3rd Gear (18T; fork groove goes to the left side of the gear teeth)
4. 4th Gear (20T; dog recesses face right)
5. 2nd Gear (17T; either side may face in)

●The output shaft gears can be identified by size; the largest diameter gear is 1st gear, and the smallest is 5th. Be sure that all parts are put back in the correct sequence and facing the proper direction, and that all circlips and washers are properly in place.

Output Shaft Gears



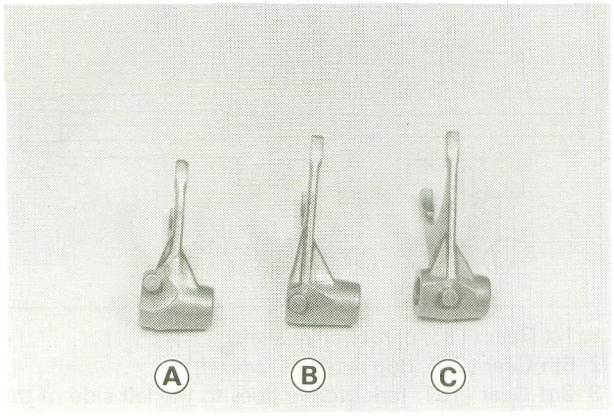
1. 2nd Gear (30T; plain side faces left)
2. 4th Gear (22T; fork groove goes to the right side of the gear teeth)
3. 3rd Gear (25T; dog recesses face left)
4. 5th Gear (26T; dogs face right)
5. 1st Gear (31T; dog recesses face left)

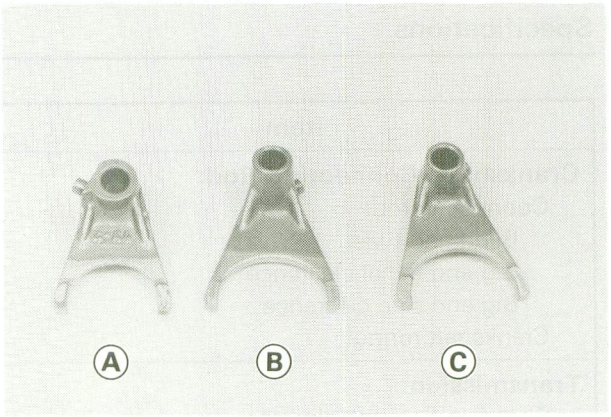
Shift Drum and Fork Installation Notes

●Apply a little transmission oil to the shift fork fingers, and fit the shift forks into the gear grooves.

Shift Fork Identification

Drive shaft 3rd gear shift fork	fingers are shorter than those of the other two shift forks
Output shaft 4th gear shift fork	guide pin goes to left side of the fingers
Output shaft 5th gear shift fork	guide pin goes to center





A. Drive Shaft 3rd Gear Shift Fork
B. Output Shaft 4th Gear Shift Fork
C. Output Shaft 5th Gear Shift Fork

●Tighten the shift drum bearing retaining bolts to the specified torque (see Exploded View).
●Fit the shift fork guide pins into the corresponding shift drum grooves.
●Tighten the shift drum operating plate bolt to the specified torque (see Exploded View).
●Apply a little transmission oil to the shift rod, and slide it into the shift forks.

Shift Fork/Gear Groove Wear

Shift Fork Finger Thickness

Standard: 4.4 ~ 4.5 mm
Service Limit: 4.3 mm

Gear Shift Fork Groove Width

Standard: 4.55 ~ 4.65 mm
Service Limit: 4.75 mm

Shift Fork Guide Pin/Shift Drum Groove Wear

Shift Fork Guide Pin Diameter

Standard: 5.9 ~ 6.0 mm
Service Limit: 5.8 mm

Shift Drum Groove Width

Standard: 6.05 ~ 6.20 mm
Service Limit: 6.30 mm

Wheels / Tires

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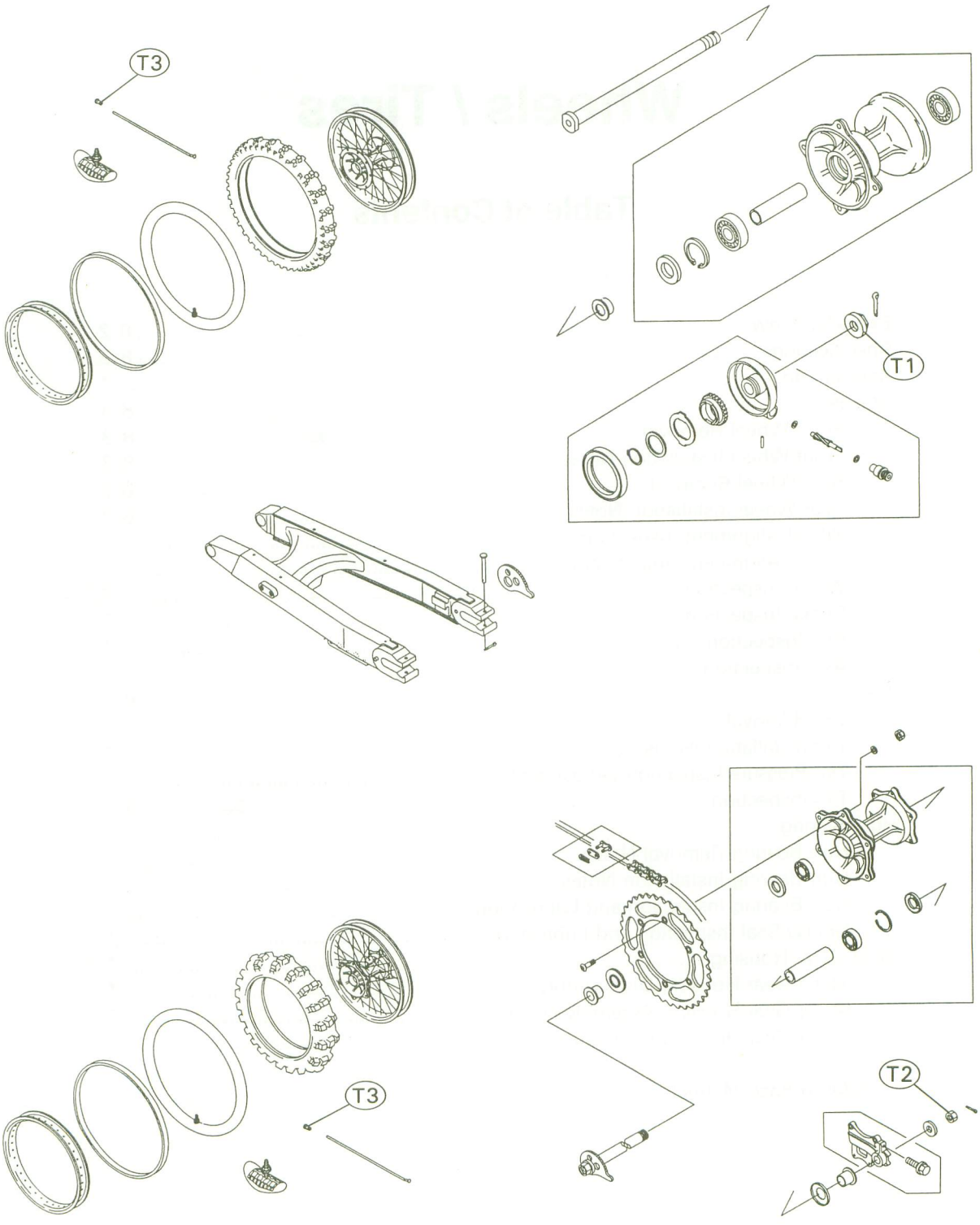
* : Refer to Base Manual

Exploded View



T1 : 88 N-m (9.0 kg-m, 65 ft-lb)
T2 : 98 N-m (10 kg-m, 72 ft-lb)
T3 : 1.5 N-m (0.15 kg-m, 13 in-lb)

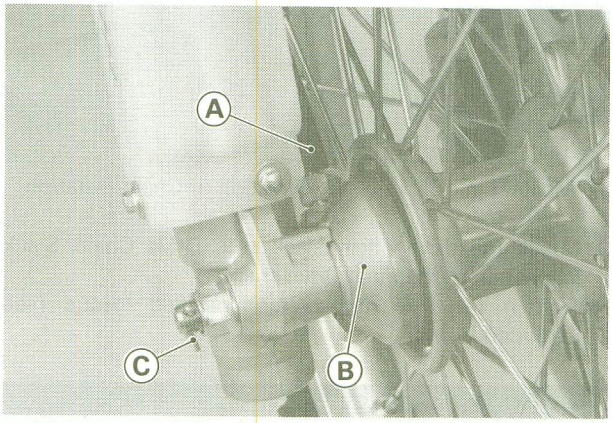
Specifications

Item		Standard	Service Limit
Tires:			
Front:	Size	80/100-21 51M	– – –
	Make, type	DUNLOP D752F	
Rear:	Size	110/100-18 64M	– – –
	Make, type	DUNLOP D752	
Air pressure		100 kPa (1.0 kg/cm², 14 psi)	– – –

Wheels

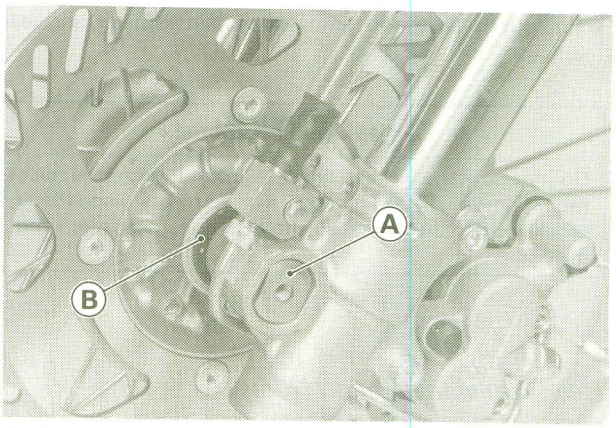
Front Wheel Removal

- Using the jack (special tool: 57001-1238) under the frame, and stabilize the motorcycle.
- Place a stand or block under the engine so that the front wheel is raised off the ground.
- Remove the front disc cover.
- Disconnect the meter cable lower end from the meter gear housing.



A. Meter Cable
B. Meter Gear Housing
C. Cotter Pin

- Remove the cotter pin and axle nut, pull out the axle and remove the wheel.
- Take off the collar from the left side of the hub.



A. Axle
B. Collar

⚠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 the disc does not touch the ground.

- Insert a wood wedge between the disc brake pads this prevents them from being moved out of their proper position, should the brake lever be squeezed accidentally.

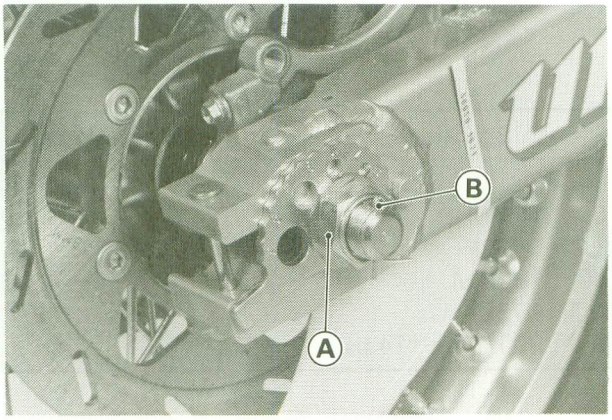
Front Wheel Installation Notes

Refer to the Base Manual, noting the following.

- Replace the cotter pin with new one.

Rear Wheel Removal

- Place the jack (special tool: 57001-1238) under the frame so that the rear wheel is raised off the ground.
- Insert a wood wedge between the brake pads this prevents them from being moved out of their proper position, should be brake pedal be squeezed accidentally.
- Remove the clip from the master link using pliers, and free the drive chain from the rear sprocket.
- Remove the cotter pin and axle nut.



A. Axle Nut B. Cotter Pin

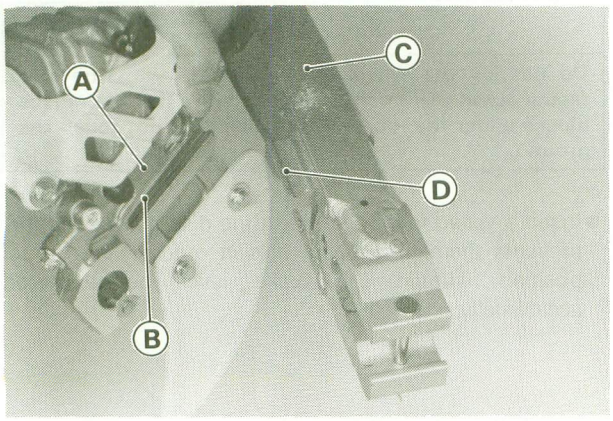
● Pull out the axle, and remove the chain adjuster, and rear wheel.

⚠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 the disc does not touch the ground.

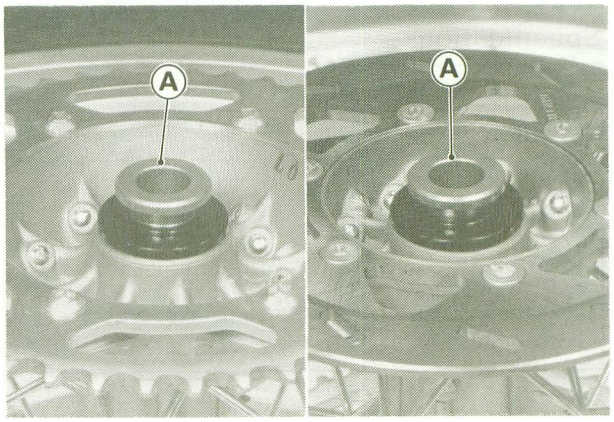
Rear Wheel Installation Notes

● Installation is the reverse of removal.
● Fit the brake holder stop against the swing arm stop.



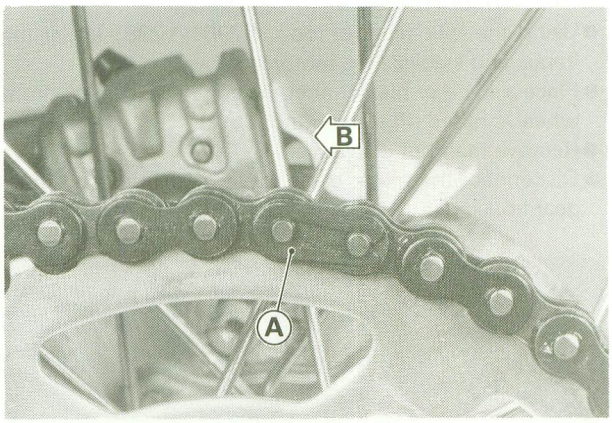
A. Brake Holder C. Swing Arm
B. Stop (Brake Holder) D. Stop (Swing Arm)

● Install the collar on the left and right side of the hub.



A. Collar

● Install the drive chain. Install the master link clip so that the closed end of the "U" points in the direction of chain rotation.



A. Master Link Clip B. Direction of Chain Rotation

● Check the drive chain slack (see Drive Chain Slack Inspection in the Final Drive chapter).
● Tighten the axle nut to the specified torque (see Exploded View).

⚠WARNING

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

● Check the rear brake for weak braking power and brake drag.

Tires

Tire Inspection

Standard Tire

Front:	Size	80/100-21 51M
	Make, type	DUNLOP D752F
Rear:	Size	110/100-18 64M
	Make, type	DUNLOP D752

Final Drive

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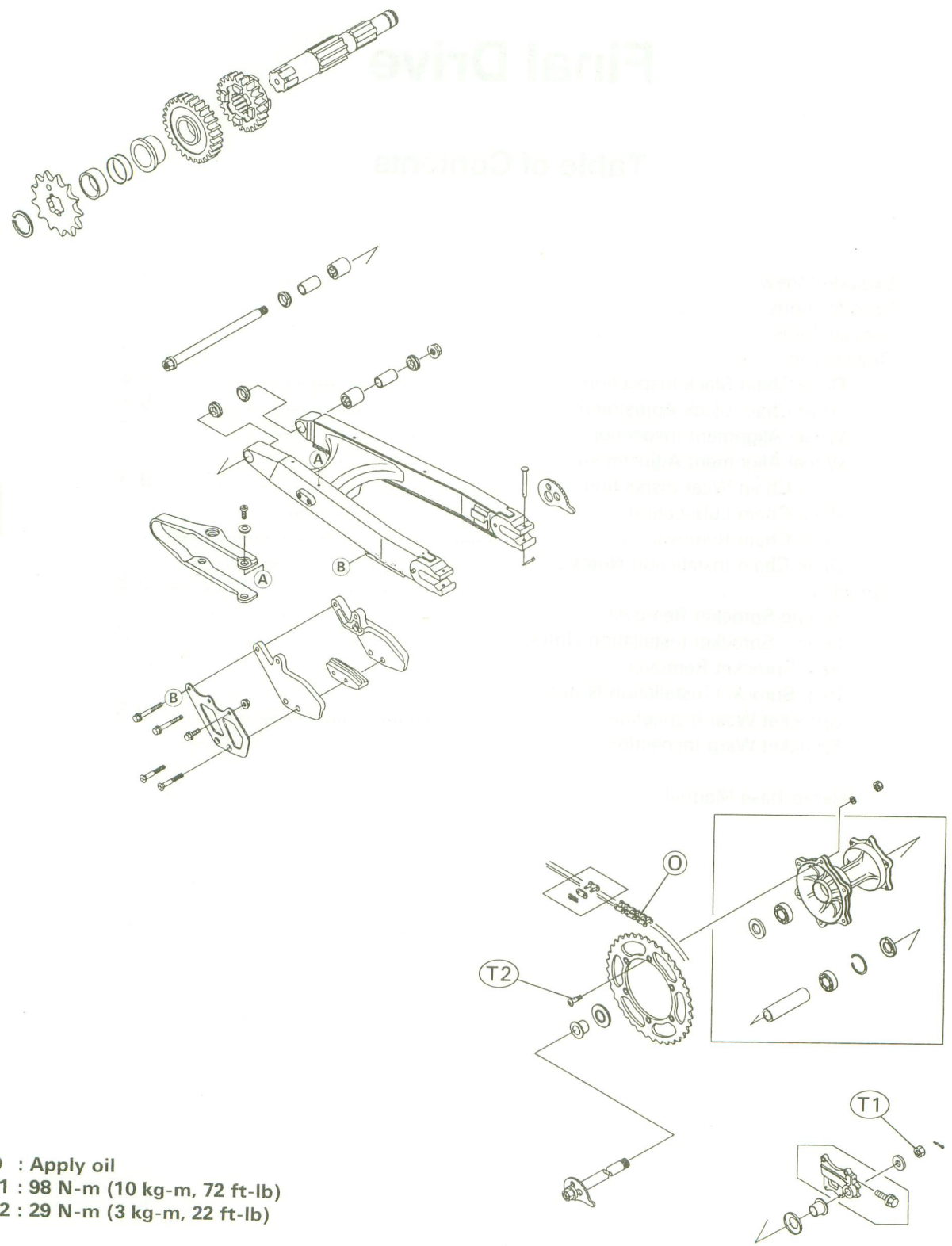
* : Refer to Base Manual

Exploded View



O : Apply oil
T1 : 98 N-m (10 kg-m, 72 ft-lb)
T2 : 29 N-m (3 kg-m, 22 ft-lb)

Specifications

Item	Standard	Service Limit
Drive Chain:		
Make	Daido	– – –
Type	D.I.D 520K	– – –
Length	112 Link	– – –
Chain slack	55 ~ 65 mm	Less than 55 mm, or more than 70 mm
20-link length	317.5 ~ 318.2 mm	323 mm
Sprockets:		
Engine sprocket diameter	60.69 ~ 61.19 mm/14T	60.3 mm
Rear sprocket diameter	232.62 ~ 233.12 mm/48T	232.3 mm
Rear sprocket warp	Under 0.4 mm	0.5 mm

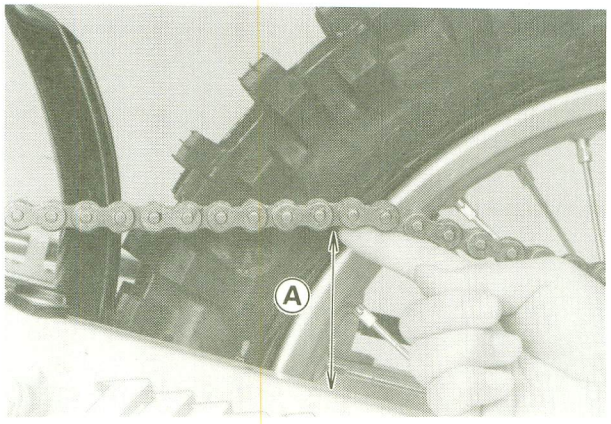
Drive Chain

Drive Chain Slack Inspection

Refer to the Base Manual, noting the following.

Drive Chain Slack

Standard: 55 ~ 65 mm



A. 55 ~ 65 mm

Drive Chain Slack Adjustment

Refer to the Base Manual, noting the following.

NOTE

○ *If wet and muddy conditions, mud sticks to the chain and sprockets resulting in an overly tight chain, and the chain may break. To prevent this, adjust the chain to 60 ~ 70 mm of slack whenever necessary.*

Drive Chain Wear Inspection

Drive Chain 20-link Length

Standard: 317.5 ~ 318.2 mm
Service Limit: 323 mm

Drive Chain

Make	Daido
Type	D.I.D520K
Links	112

Sprocket

Sprocket Wear Inspection

Sprocket Diameter

(Engine)
Standard: 60.69 ~ 61.19 mm
Service Limit: 60.3 mm
(Rear)
Standard: 232.62 ~ 233.12 mm
Service Limit: 232.3 mm

Brakes

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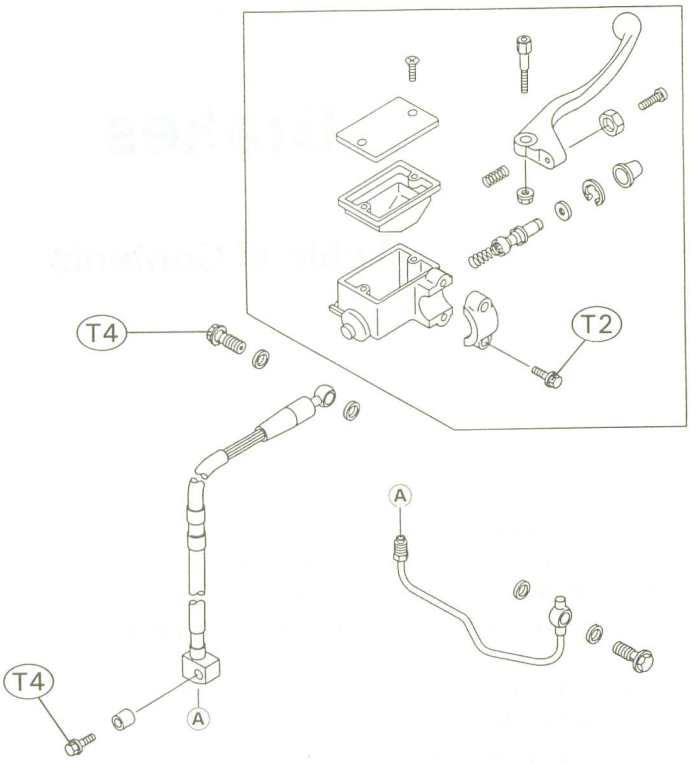
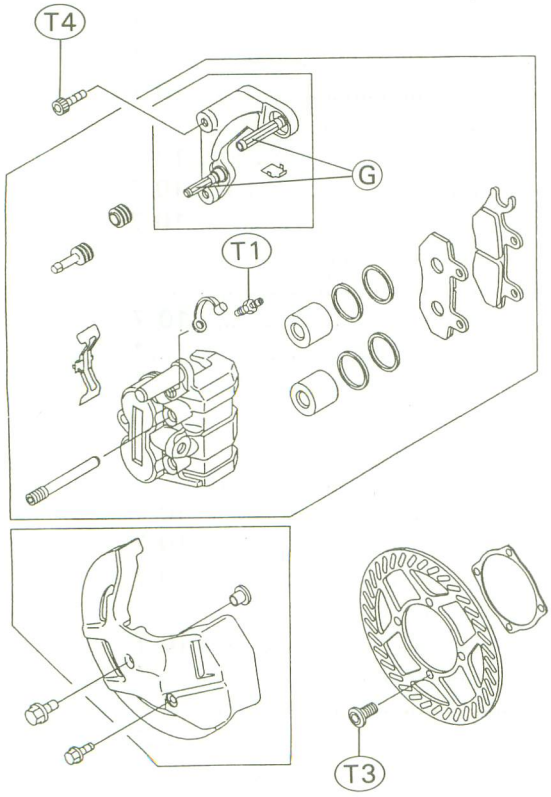
* : Refer to Base Manual

Exploded View

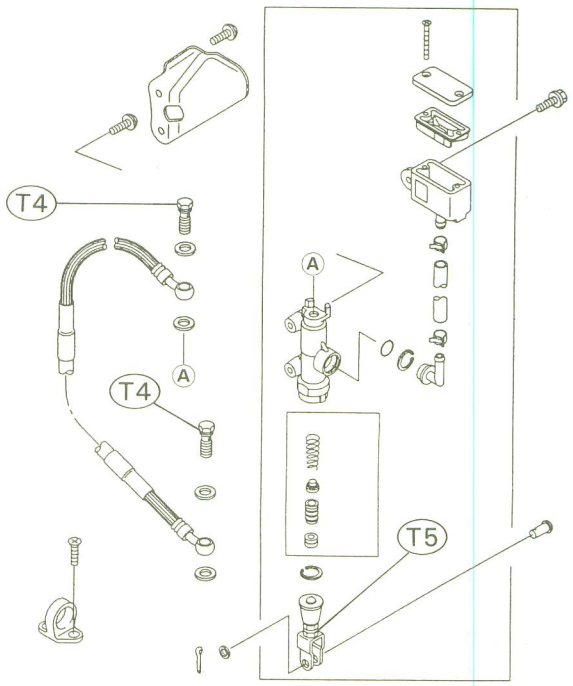
Front Disc Brake

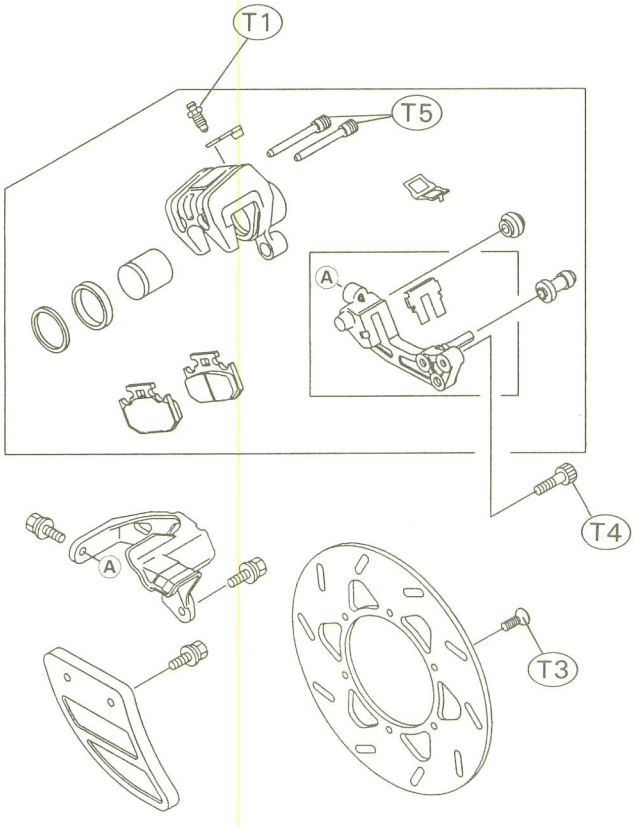


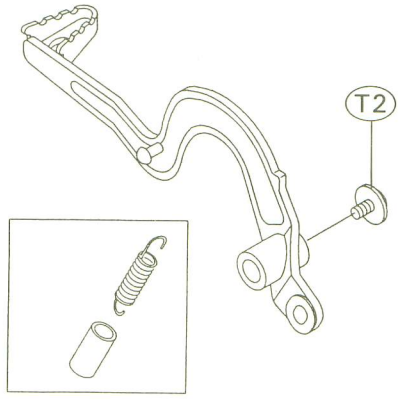


G : Apply poly butyl cuprysil grease.
T1 : 7.8 N-m (0.8 kg-m, 69 in-lb)
T2 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T3 : 23 N-m (2.3 kg-m, 16.5 ft-lb)
T4 : 25 N-m (2.5 kg-m, 18.0 ft-lb)
T5 : 18 N-m (1.8 kg-m, 13.0 ft-lb)

Rear Disc Brake







G : Apply poly butyl cuprysil grease
T1 : 7.8 N-m (0.8 kg-m, 69 in-lb)
T2 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T3 : 23 N-m (2.3 kg-m, 16.5 ft-lb)
T4 : 25 N-m (2.5 kg-m, 18.0 ft-lb)
T5 : 18 N-m (1.8 kg-m, 13.0 ft-lb)

Specifications

Item		Standard	Service Limit
Brake Adjustment:			
Brake lever play		Adjustable (to suit rider)	- - -
Brake Pad:			
Pad lining thickness :	Front	4.5 mm	1 mm
	Rear	4.7 mm	1 mm
Brake Discs:			
Disc thickness :	Front	2.85 ~ 3.15 mm	2.5 mm
	Rear	4.35 ~ 4.65 mm	3.8 mm
Disc runout		not more than 0.12 mm	0.3 mm

Disc Brakes

Brake Adjustment:

Brake Lever/Pedal Free Play/Adjustment

Disc and disc pad wear is automatically compensated for and has no effect on brake lever/pedal action. So there are no parts that require adjustment on the brakes except brake lever play.

If the brake lever/pedal has a soft, or "spongy feeling", check the brake fluid level in the reservoir and bleed the air from the brake line (see Bleeding the Brake Line).

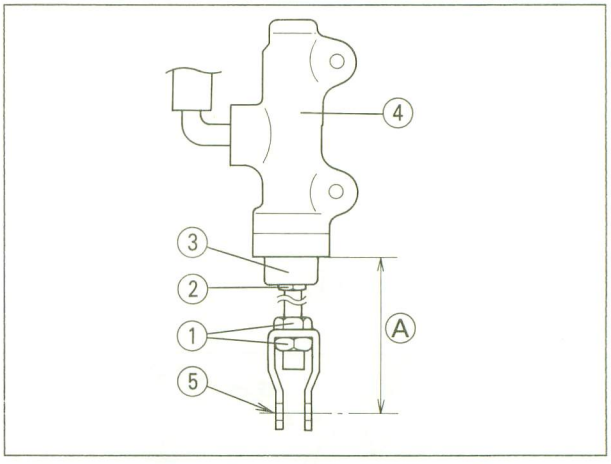
Rear Brake Pedal Position/Pedal Play Adjustment

The brake pedal position and pedal play should not be adjusted. There is no pedal position adjustment device is installed.

NOTE

○ *Usually it is not necessary to adjust the pedal position, but adjust it when the rear master cylinder is disassembled.*

○ *When the brake pedal is in its rest position, measure the length (A) indicated in the figure.*



1. Locknut
2. Adjuster
3. Dusct Cover
4. Rear Master Cylinder
5. Center of the Mounting Hole

A. 52 mm

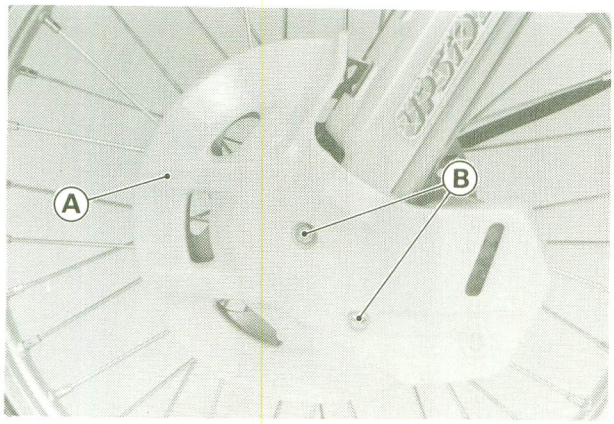
★If the length (A) is not the specified length, loosen the locknut, and adjust a adjuster.

●Tighten the locknut to the specified torque (see Exploded View).

Caliper:

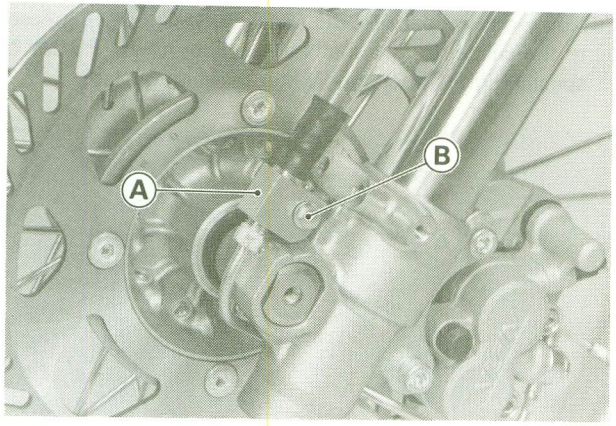
Caliper Removal

●Remove the front disc cover and rear caliper cover.



A. Front Disc Cover B. Mounting Bolts

- Remove the left front fork protector.
- Remove the front brake hose holder mounting bolt.



A. Brake Hose Holder B. Mounting Bolt

- Loosen the banjo bolt at the brake hose lower end, and tighten it loosely.
- Loosen the brake pad bolts before the caliper removal if the caliper is to be disassembled.
- Unscrew the mounting bolts, and remove the caliper from the disc.

NOTE

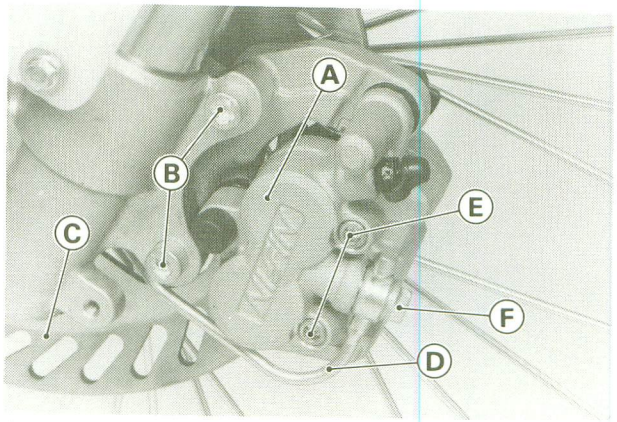
○ *If the caliper is to be disassembled after removal and compressed air is not available, disassemble the caliper before brake hose removal (see Disassembly).*

- Unscrew the banjo bolt and remove the brake hose from the caliper (see Brake Hose Removal/Installation).

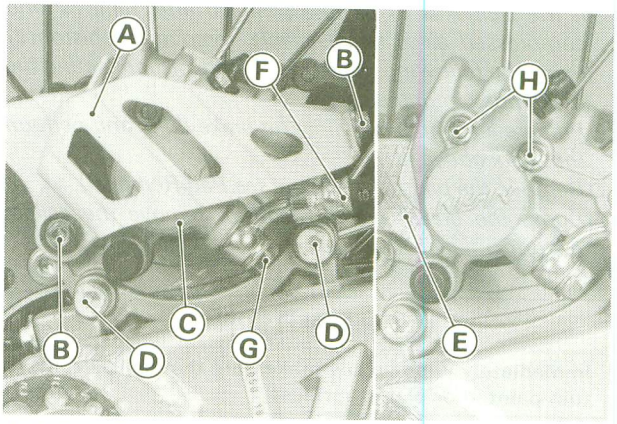
○ There is a flat washer on each side of the hose fitting.

NOTE

○ *Immediately wipe up any brake fluid that spills.*



A. Front Caliper
B. Caliper Mounting Bolts
C. Brake Disc
D. Brake Hose
E. Brake Pad Bolts
F. Banjo Bolt



A. Caliper Cover
B. Mounting Bolts
C. Rear Caliper
D. Caliper Mounting Bolts
E. Brake Disc
F. Brake Hose
G. Banjo Bolt
H. Brake Pad Bolts

Caliper Disassembly

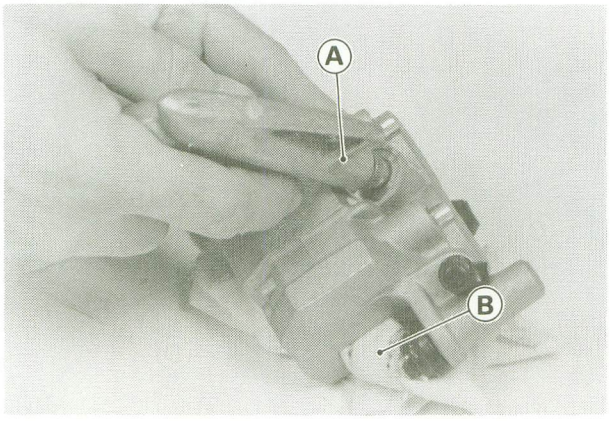
- Remove the front/rear caliper.
- Remove the pads and spring (see Pad Removal).
- Remove the caliper holder, shaft rubber friction boot and dust cover.
- Using compressed air, remove the piston(s).

○ Cover the caliper opening with a clean, heavy cloth.

○ Remove the piston(s) by lightly applying compressed air 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.



A. Apply compressed air. B. Cloth

NOTE

○*If the caliper is to be disassembled after removal and compressed air is not available, remove the piston(s) using the following three steps before disconnecting the brake hose from the caliper.*
○*Prepare a suitable container for brake fluid, and perform the work above it.*
○*Remove the pads and spring (see Pad Removal).*
○*Pump the brake lever or pedal to remove the caliper piston(s).*

⚠CAUTION

Immediately wipe up any brake fluid that spills. It may ruin painted or plated surfaces.

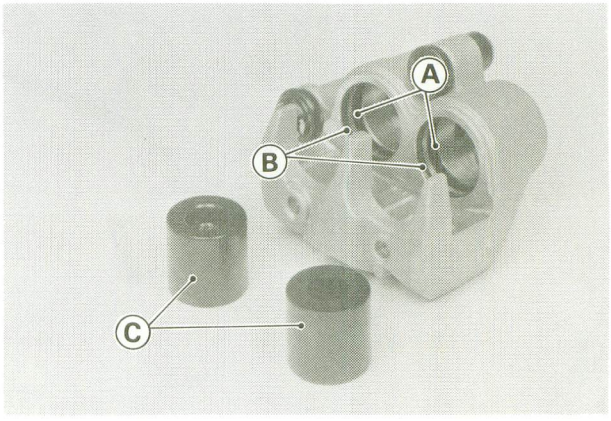
Caliper Assembly Notes

●Clean the caliper parts except for the pads.

⚠CAUTION

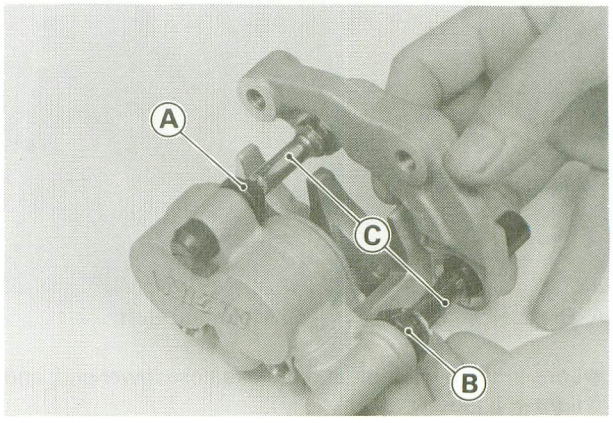
For cleaning the parts, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol.

●Tighten the bleed valve to the specified torque (see Exploded View).
●It is recommended that the fluid seal which is removed, be replaced with a new one.
●Replace the dust seal if it is damaged.
●For the front and rear calipers, do the following.
○Apply brake fluid to the fluid seal(s) and dust seal(s), and install them into the cylinders by hand.
○Apply brake fluid to the outside of the pistons, and push them into the each cylinder by hand.



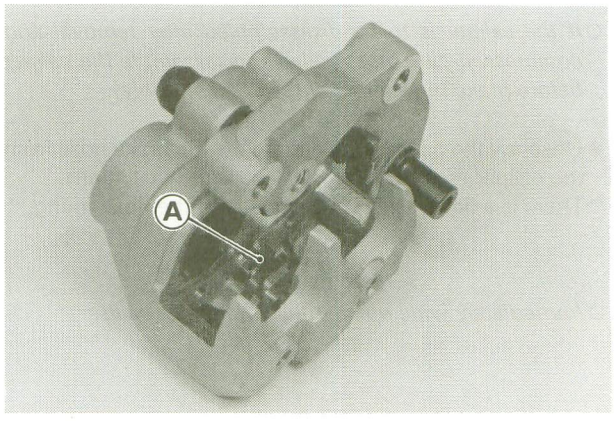
A. Fluid Seals C. Piston
B. Dust Seals

●Replace the shaft rubber friction boot and dust cover if they are damaged.
●Apply a thin coat of PBC (Poly Butyl Cuprysil) grease to the caliper holder shafts and holder holes (PBC is a special high temperature, water-resistant grease).



A. Shaft Rubber Friction Boot
B. Dust Cover
C. Caliper Holder Shafts

●Install the anti-rattle spring in the caliper as shown.



A. Anti-Rattle Spring

●Install the pads (see Pad Installation).

Brake Pads:

Pad Installation

- Push the caliper piston in by hand as far as it will go.
- Install the anti-rattle spring.
- Install the piston side pad first, and then install the remaining pad.

⚠WARNING

Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever of 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.

Pad Inspection

Pad Lining Thickness (mm)

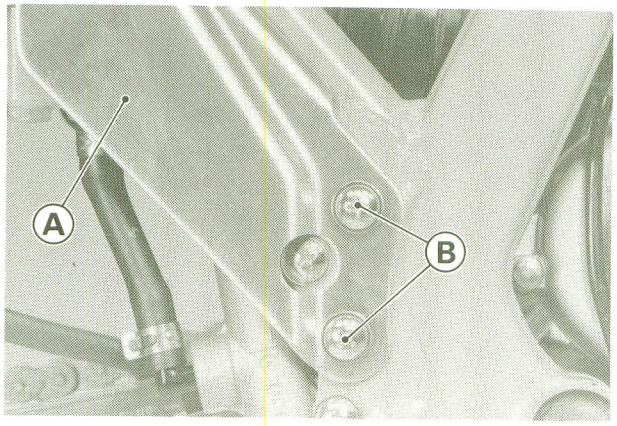
	Front	Rear
Standard	4.5	4.7
Service Limit	1	1

Master Cylinder:

Rear Master Cylinder Removal

Refer to the Base Manual, noting the following.

- Remove the reservoir cover.



A. Reservoir Cover B. Mounting Screws

Brake Disc:

Disc Inspection

Disc Thickness

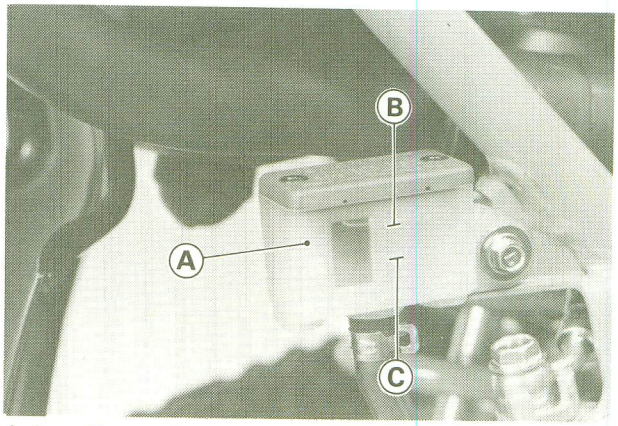
Standard:	**Front:**	**2.85 ~ 3.15 mm**
	Rear:	**4.35 ~ 4.65 mm**
Service Limit:	**Front:**	**2.5 mm**
	Rear:	**3.8 mm**

Brake Fluid:

Brake Fluid Level Inspection

Refer to the Base Manual, noting the following.

Rear Brake Fluid Reservoir



A. Rear Reservoir B. Upper Level C. Lower Level

Suspension

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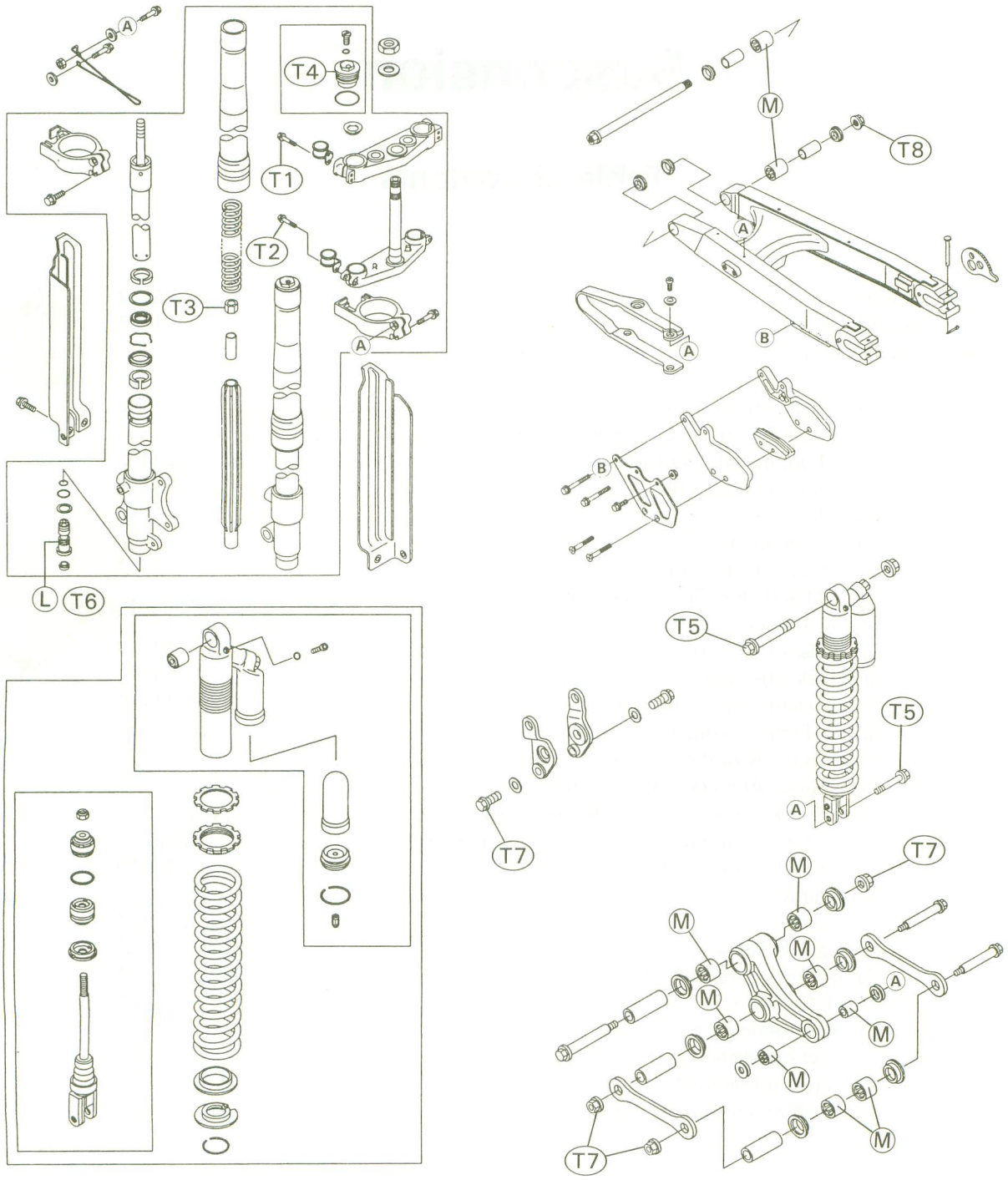
* : Refer to Base Manual

Exploded View



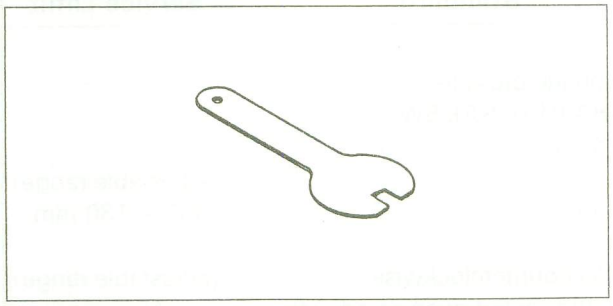
L : Apply a non-permanent locking agent to the threads.
M : Apply plenty of molybdenum disulfide grease to the *inside*.
T1 : 20 N-m (2.0 kg-m, 14.5 ft-lb)
T2 : 24 N-m (2.4 kg-m, 17.5 ft-lb)
T3 : 15 N-m (1.5 kg-m, 11 ft-lb)
T4 : 29 N-m (3.0 kg-m, 22 ft-lb)
T5 : 39 N-m (4.0 kg-m, 29 ft-lb)
T6 : 54 N-m (5.5 kg-m, 40 ft-lb)
T7 : 81 N-m (8.3 kg-m, 60 ft-lb)
T8 : 88 N-m (9.0 kg-m, 65 ft-lb)

Specifications

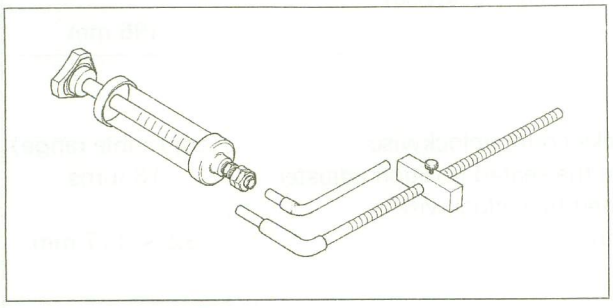
Item	Standard	Service Limit
Front Fork:		
Air pressure	Atmospheric pressure	– – –
Oil viscosity	KAYABA 01 or SAE 5W	– – –
Oil capacity	569 ±4 mL	– – –
		(adjustable range)
Oil level	95 ±2 mm	80 ~ 130 mm
(fully compressed, spring removed)		
Compression damping adjustment	13 clicks counterclockwise (from the seated position adjuster turned fully clockwise)	(adjustable range) 16 turns
Fork spring free length	506.5 mm	496 mm
Rear Suspension:		
Rear Shock Absorber:		
Rebound damping adjustment	14 clicks counterclockwise (from the seated position adjuster turned fully clockwise)	(adjustable range) 16 turns
Spring preload (adjusting nut position from the center of the upper mounting hole)	108 mm	92 ~ 117 mm
Gas Reservoir:		
Compression damping adjustment	12 clicks counterclockwise (from the seated position adjuster turned fully clockwise)	(adjustable range) 16 turns
Gas pressure	1 000 kPa (10 kg/cm^2, 142 psi)	– – –

Special Tools

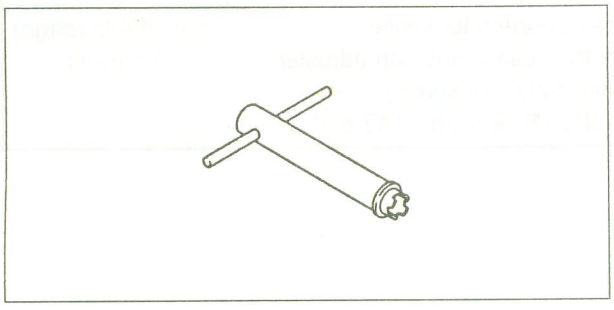
Fork Spring Holder: 57001-1286



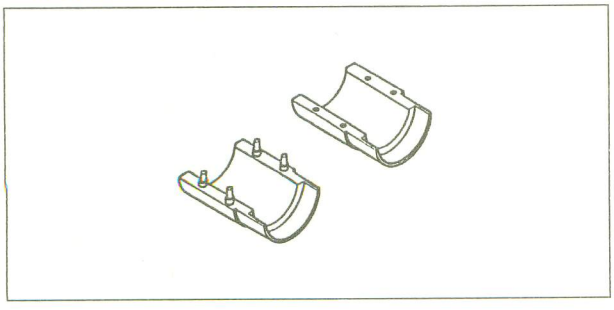
Fork Oil Level Gauge: 57001-1290



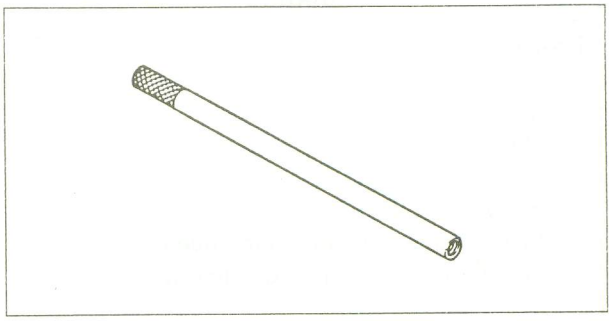
Fork Cylinder Holder: 57001-1287



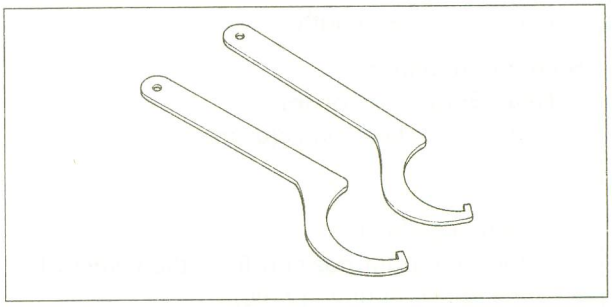
Fork Oil Seal Driver, Φ43: 57001-1340



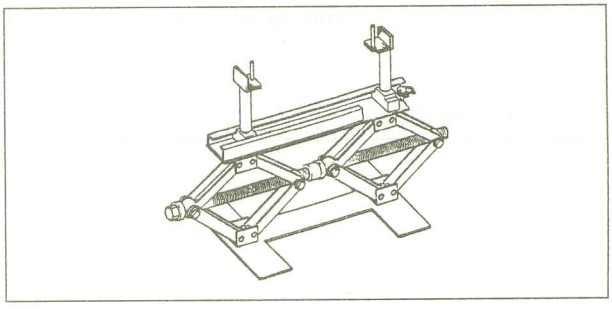
Fork Push Rod Puller: 57001-1298



Hook Wrench: 57001-1101



Jack: 57001-1238



Front Fork

Front Fork Adjustment

The front fork should always be adjusted for the rider's weight and track conditions by using one or more of the following methods.

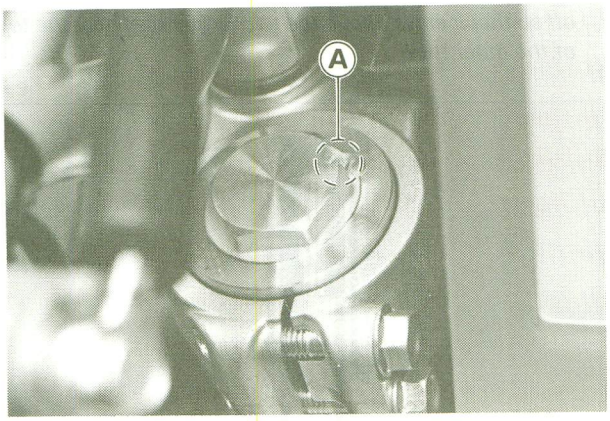
Basically, there are three adjustments you can make to the front fork.

- ○ Air pressure – Air pressure acts as a progressive spring and affects the entire range of fork travel. The air pressure in the fork increases as the fork heats up, so the fork action on your KDX will get stiffer as the race progresses. Because of this, we don't recommended using air pressure for additional springing. Your KDX forks are designed to work without adding any air.
- ○ Compression damping adjustment – This adjustment affects how quickly the fork compresses. The fork compression damping adjuster has 16 clicks. The seated position (full clockwise until the adjsuter stops) is full hard. From the point, 13 clicks counterclockwise is the standard setting, and 16 clicks (full counter-clockwise until the adjuster stops) is full soft.
- ○ Oil level adjustment – The effects of higher or lower fork oil level are only felt during the final 100 mm of fork travel. A higher oil level (more oil) will make the fork rebound more quickly. A lower oil level (less oil) will make the fork rebound more slowly.
- ○ Fork springs – Optional springs are available that are softer and stiffer than standard.

Air Pressure

The standard air pressure in the front fork tubes is atmospheric pressure. The air pressure in the fork tubes increases as the fork heats up, so the fork action will get stiffer as vehicle operation progresses.

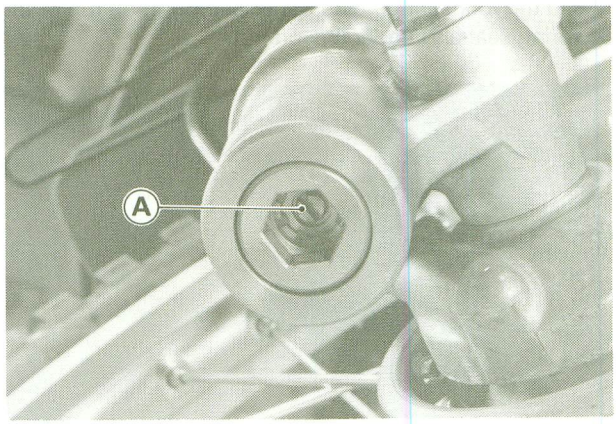
- ● Park the vehicle on level ground.
- ● Remove the screws at the top of the front fork top plugs.



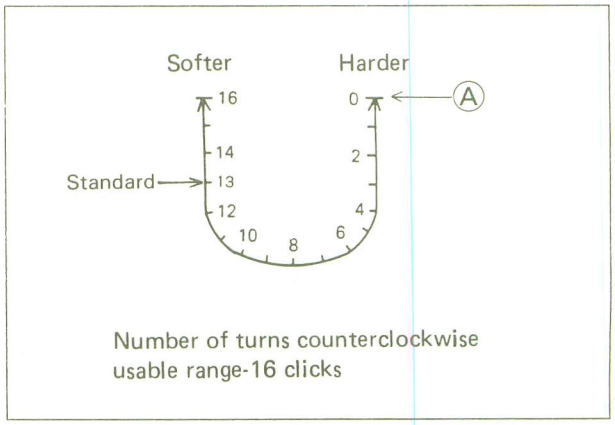
A. Screw

Compression Damping Adjustment

- ● Clean the bottom of the inner tubes.
- ● Remove the caps on the bottom of the inner tubes.
- ● To adjust compression damping, turn the adjuster on the front fork cylinder valve with the blade of a screwdriver until you feel a click. Adjust the compression damping to suit your preference under special condition.



A. Adjuster



A. Seated position adjuster turned fully clockwise.

⚠CAUTION

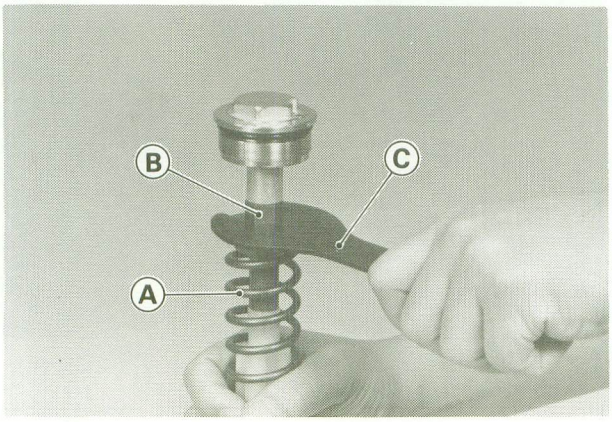
The left and right fork tubes must have the same shock damping.

- ● Put the caps into the bottom of the outer tubes.

Oil Level Adjustment

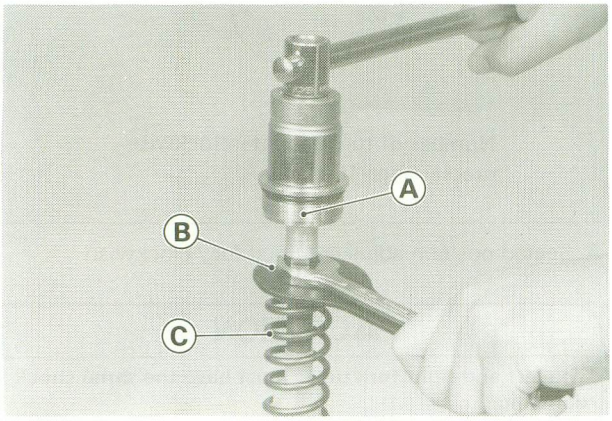
Draining Oil

- Remove the front fork tube (see Front Fork Removal in this chapter).
- Hold the fork tube vertically, and unscrew the top plug.
- Push the outer tube all the way down away from the top plug and hold it there throughout the following procedure.
- Pull the fork spring away from the top plug a little and slip the fork spring holder (special tool) in on top of the spring seat and under the rod nut.



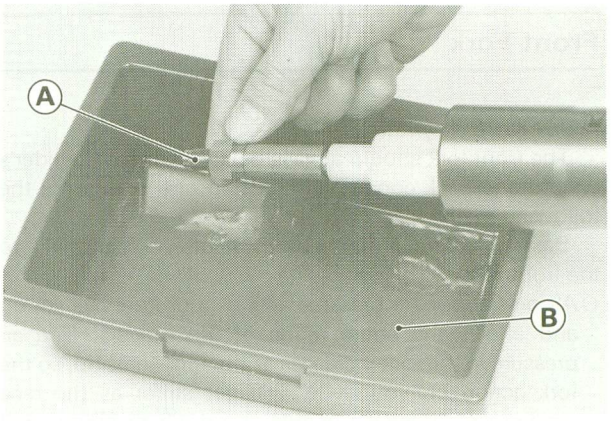
A. Fork Spring
B. Push Rod Nut
C. Fork Spring Holder: 57001-1286

- Use wrenches on the rod nut and the top plug to loosen the rod nut.



A. Top Plug
B. Spring Seat
C. Fork Spring

- Remove the top plug from the push rod.
- Lift the fork spring and its top spring seat out of the inner tube.
- Hold the fork tube upside down over a clean container and pump it to drain the oil.



A. Push Rod
B. Container

NOTE

○ *To discharge the fork oil, pump the push rod up and down ten times.*

Filling with Oil

- Hold the fork tube upright, press the outer tube and the push rod all the way down.

NOTE

○ *The spring should not be installed.*

- Fill the front fork to the top with specified oil.

Recommended Oil

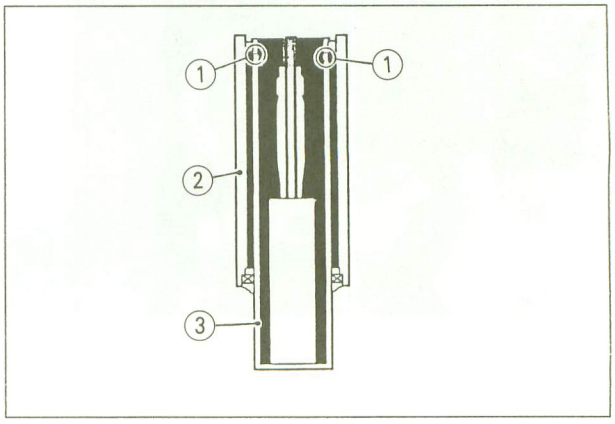
KAYABA 01 or SAE 5W

Front Fork Oil Capacity

569 ±4 mL

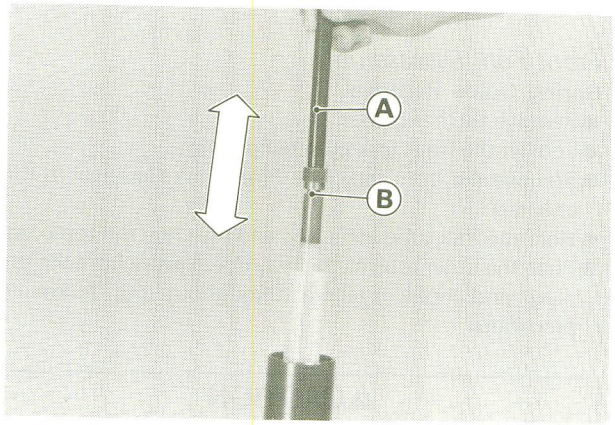
NOTE

○ *While doing this, take care to keep the oil level topped off so that it stays above the two large holes near the top of the inner tube.*



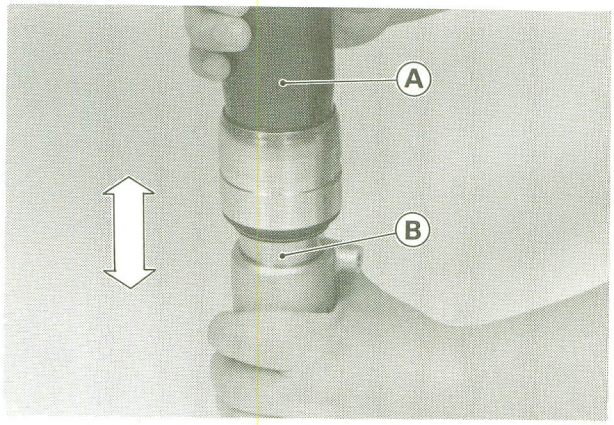
1. Large Holes
2. Outer Tube
3. Inner Tube

● Purge the air from the fork cylinder by gently moving the rod puller (special tool) up and down five times.



A. Fork Push Rod Puller: 57001-1298
B. Push Rod

● Purge the air from between the inner and outer tubes by pumping the outer tube up and down.

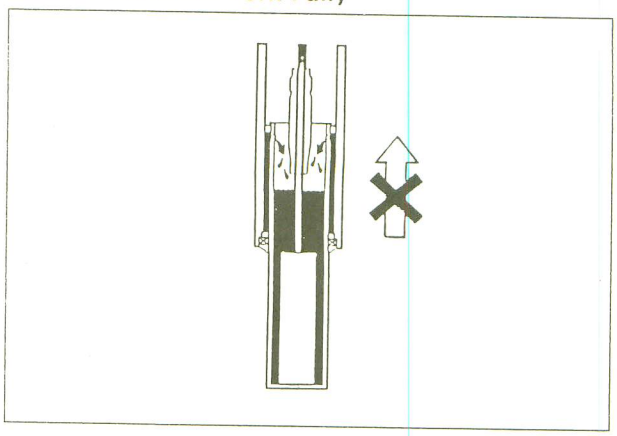


A. Outer Tube B. Inner Tube

⚠CAUTION

Never extend the fork fully, oil will be forced from between the tubes into the inner tube through the holes at the top of it. This raises the oil level in the inner tube. If the fork is extended to the full length of its normal travel, the oil level will be raised about 30 mm.

Never Extend the Fork Fully

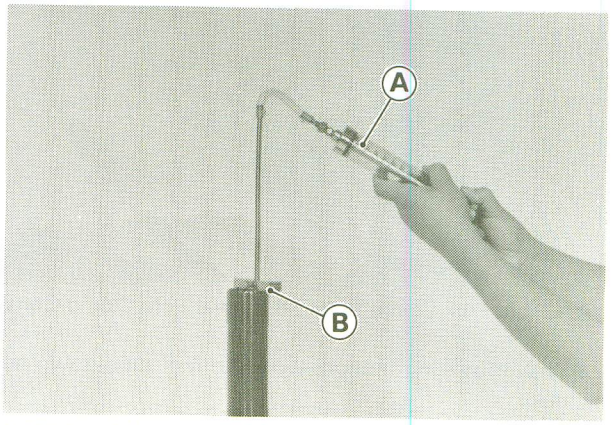


● After purging the air from the assembly, let it sit for about five minutes so that any suspended air bubbles can surface.

Adjusting Oil Level

● Check the oil level.

○ With the fork fully compressed, put the oil level gauge (special tool) on the top of the tube, and inspect the distance from the top of the inner tube to the oil.



A. Oil Level Gauge: 57001-1290 B. Stopper

NOTE

○ *The gauge tube is graduated in 1 cm division.*

○ *The syringe body is graduated in 10 mL division, excluding the gauge tube of about 5 mL capacity.*

Oil Level (fully compressed, without spring)

Standard:	**95 ±2 mm**
Adjustable Range:	**80 ~ 130 mm**

★ If no oil is pumped out, there is insufficient oil in the fork tube. Pour in enough oil, then pump out the excess oil.

● Install the parts removed (see Front Fork Assembly in this chapter).

Fork Spring

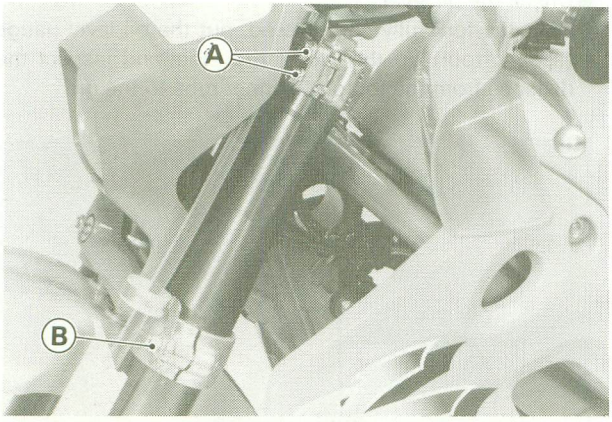
Different fork springs are available to achieve suitable front fork action in accordance with the rider's weight and track condition.

- Harder springs make the fork stiffer, and rebound action quicker.
- Softer springs make the fork softer, and rebound action slower.

Front Fork Removal (Each Fork Tube)

Front Fork Removal

- Remove the following.
  - Front Disc Cover
  - Brake Hose Holder
  - Front Fork Protector
- Remove the caliper from the fork tube to be removed, and rest the caliper on some kind of stand so that it doesn't dangle.
- Remove the front wheel (see Front Wheel Removal in the Wheels/Tires chapter).
- Loosen the upper and lower fork clamp bolts.



A. Upper Fork Clamp Bolts B. Lower Fork Clamp Bolts

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

Front Fork Installation Notes

- Installation is the reverse of removal.
- If the fork tube was disassembled, check the fork oil level.
- Route the cables and hose according to the Cable and Hose Routing section in the General Information chapter.
- Tighten the lower and upper clamp bolts to the specified torque (see Exploded View).
- Install the front wheel (see Front Wheel Installation Notes in the Wheels/Tires chapter).
- Tighten the front fork protector mounting bolts to the specified torque (see Exploded View).
- Install the brake hose holder.
- Tighten the caliper mounting bolts to the specified torque (see Exploded View).
- Check front brake operation after installation.
- Install the front disc cover.

Front Fork Disassembly

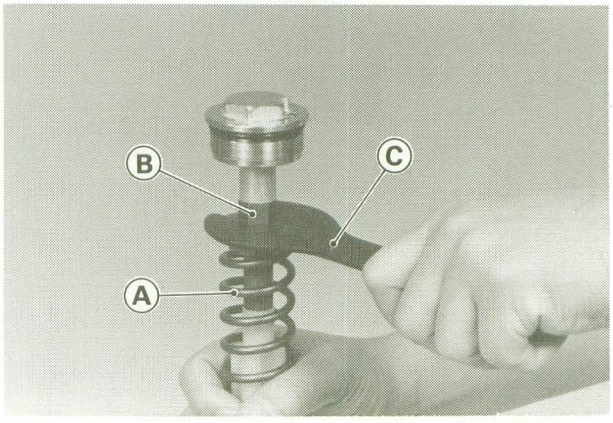
Spring Guide Removal

- Remove the handlebar.
- Loosen the front fork plug temporarily.
- Remove the front fork (see Front Fork Removal in this chapter).
- Hold the fork tube vertically, and unscrew the top plug.
- Push the outer tube all the way down away from the top plug and hold it there throughout the following procedure.

⚠CAUTION

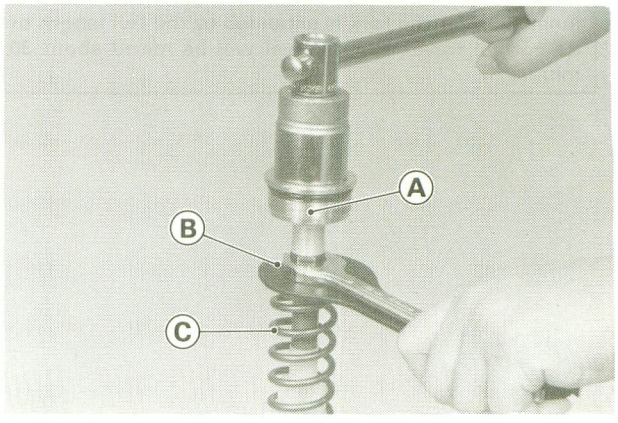
Be careful not to damage the outer tube.

- Pull the fork spring away from the top plug a little and slip the fork spring holder (special tool) in on top of the spring seat and under the rod nut.



A. Fork Spring
B. Push Rod Nut
C. Fork Spring Holder: 57001-1286

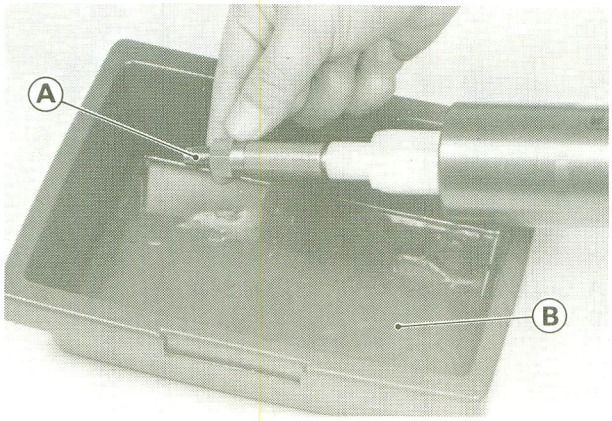
- Use wrenches on the rod nut and the top plug to loosen the push rod nut.



A. Top Plug
B. Spring Seat
C. Fork Spring

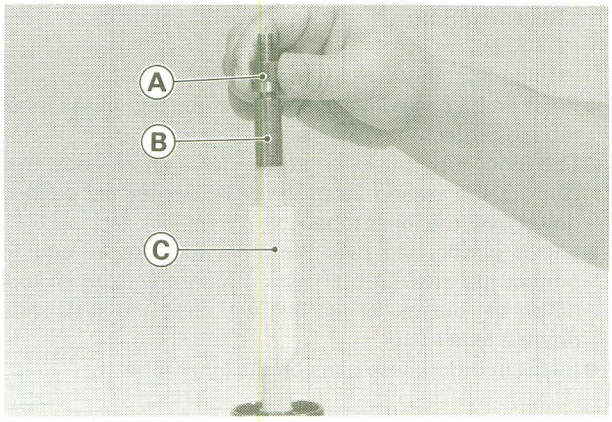
- Remove the top plug from the push rod.

- Lift the fork spring and its top spring seat out of the inner tube.
- Hold the fork tube upside down over a clean container and pump it to drain the oil.



A. Push Rod
B. Container

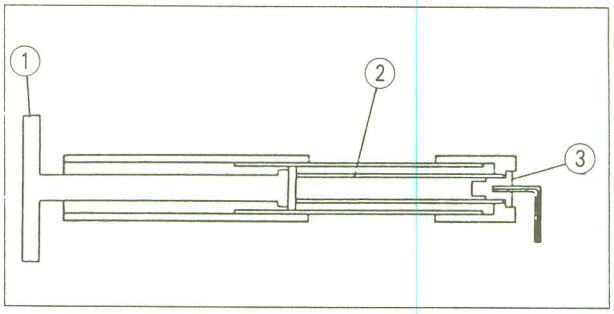
- Remove the push rod nut, and take out the collar and the spring guide.



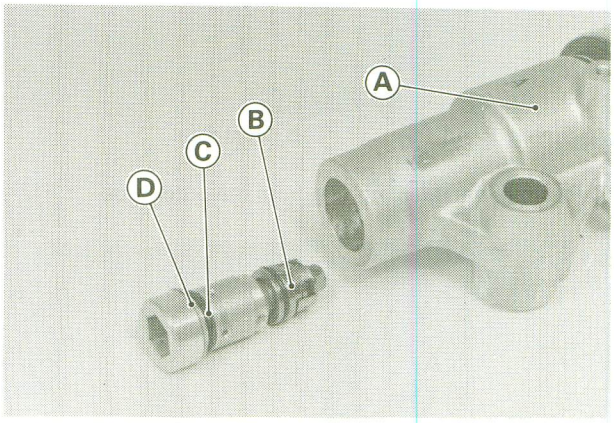
A. Push Rod Nut
B. Collar
C. Spring Guide

Push Rod Disassembly

- Hold the fork tube horizontally in a vise.
- Clean the bottom of the inner tube.
- Remove the cap on the bottom of the inner tube.
- Stop the cylinder unit from turning by using the fork cylinder holder (special tool). Unscrew the compression valve assembly, and take the compression valve assembly and gasket out of the bottom of the inner tube.

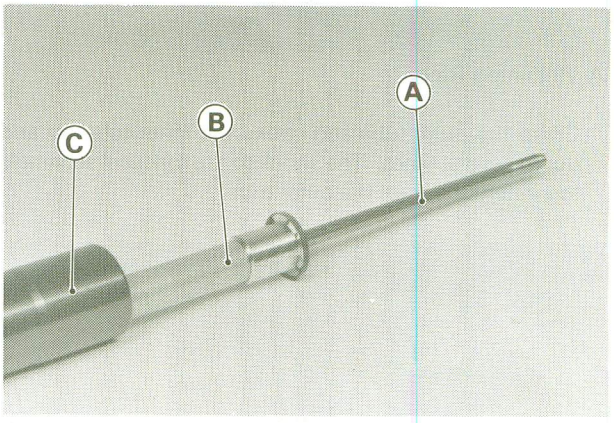


1. Fork Cylinder Holder: 57001-1287
2. Cylinder Unit
3. Compression Valve Assembly



A. Inner Tube
B. Compression Valve Assembly
C. O-ring
D. Gasket

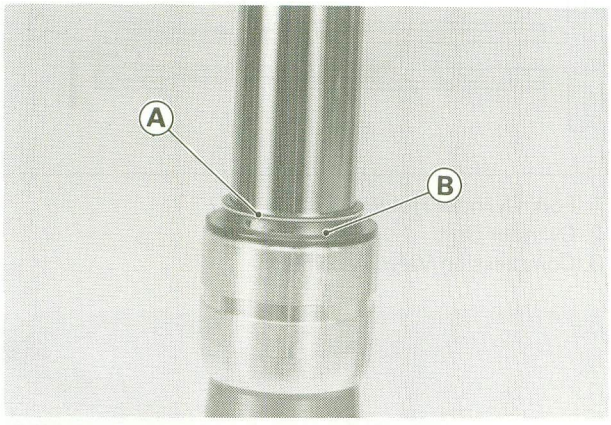
- Remove the push rod and cylinder unit from the top of the outer tube.



A. Push Rod
B. Inner Cylinder
C. Outer Tube

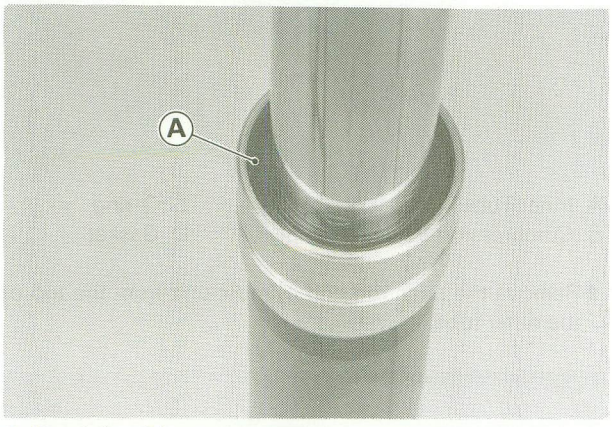
Inner Tube Removal

● Separate the inner tube from the outer tube as follows:
○ Slide up the spring band.
○ Slide up the dust seal.



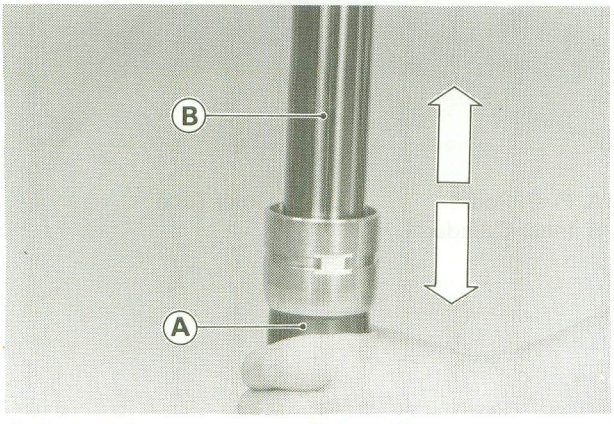
A. Spring Band B. Dust Seal

○ Remove the retaining ring from the outer tube.



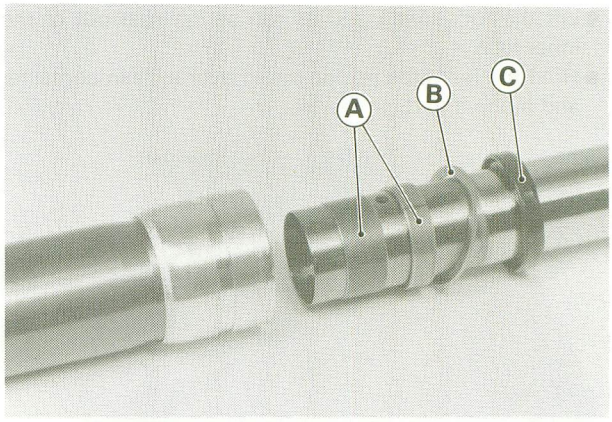
A. Retaining Ring

○ Grasp the outer tube and stroke the inner tube up and down several times. The shock to the fork seal separates the inner tube from the outer tube.



A. Outer Tube B. Inner Tube

● Remove the guide bushings, washer, oil seal, retaining ring, dust seal, spring band from the inner tube.

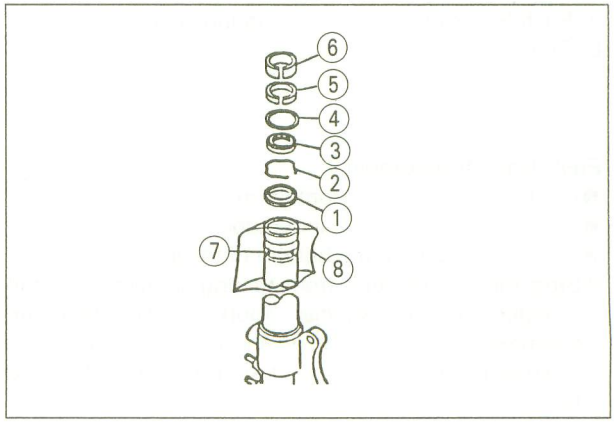


A. Guide Bushings C. Oil Seal
B. Washer

Front Fork Assembly

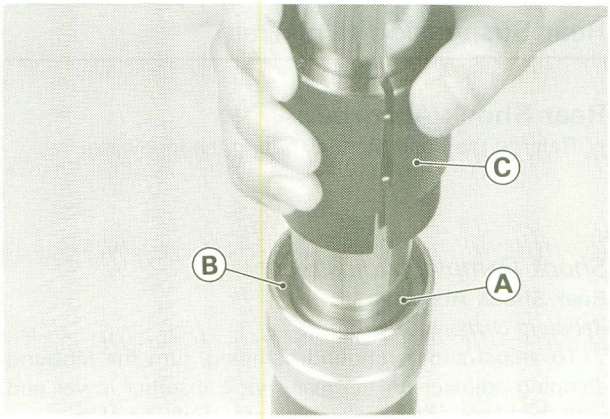
Inner to Outer Tube Assembly

● Assembly is the reverse order of disassembly.
● Replace the following with new parts.
Dust Seal
Retaining Ring
Oil Seal
Guide Bushing
● Place an oil coated plastic bag over the end of the inner tube to protect the oil seals.
○ The inner tube bushing groove has a sharp edge that can out the sealing lip of the seals as they are pushed down over the inner tube.
● Slip a plastic bag over the inner tube upper end to protect the dust and oil seals. A light coating of fork oil on the outside of the bag will make the seals slide down a little easier.
● Install in order these parts on the inner tube:



1. Dust Seal
2. Retaining Ring
3. Oil Seal
4. Washer
5. Outer Tube Guide Bushing
6. Inner Tube Guide Bushing
7. Sharp Edge
8. Plastic Bag

● When installing the new outer tube guide bushing, hold the washer against the new bushing, and tap the washer with the fork oil seal driver (special tool) until it stops.

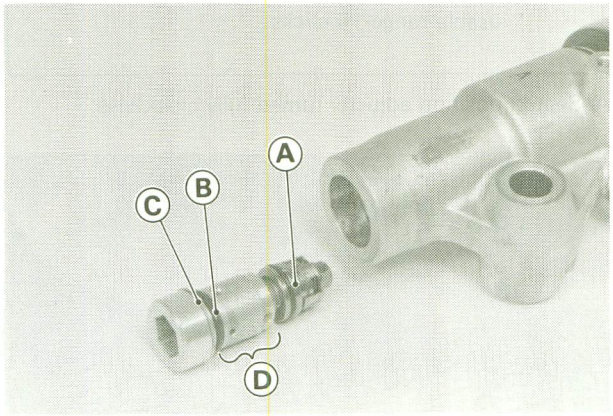


A. Guide Bushing
B. Washer
C. Fork Oil Seal Driver: 57001-1340

● After installing the washer, install the oil seal by using the fork oil seal driver (special tool).

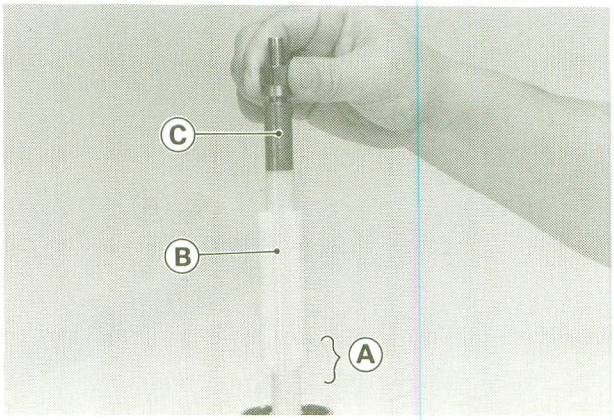
Install Inner Cylinder

● Check the O-ring on the compression valve assembly, and replace it with a new one if damaged.
● Replace the gasket with a new one.
● Apply a non-permanent locking agent to the threads of the compression valve and screw the valve into the bottom of the inner tube.



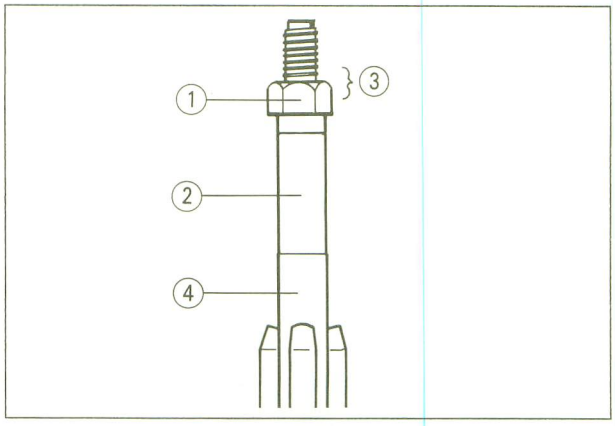
A. Compression Valve
B. O-ring
C. Gasket
D. Threads

● Hold the inner cylinder with the inner cylinder holder (special tool), and tighten the valve to the specified torque (see Exploded View).
● Install the spring guide so that the taper end is down, and install the collar.



A. Taper End
B. Spring Guide
C. Collar

● Screw on the push rod nut so that the chamfered side is UP.



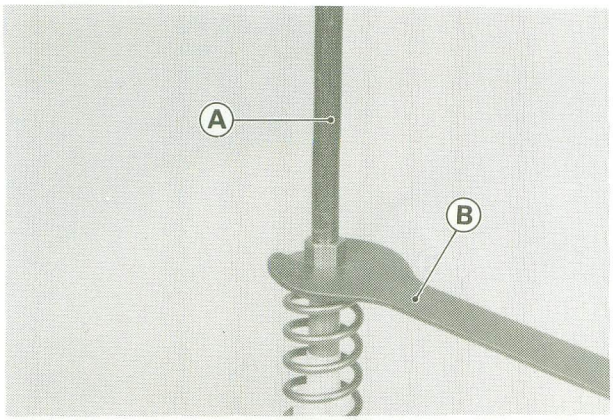
1. Push Rod Nut
2. Collar
3. Chamfered Side
4. Spring Guide

● Pour in the type and amount of fork oil specified and adjust the oil level (see Oil Level Adjustment in this chapter).
● Screw the fork push rod puller (special tool) onto the end of the rod.
● Pull the push rod up with the special tool for the next procedures.

NOTE

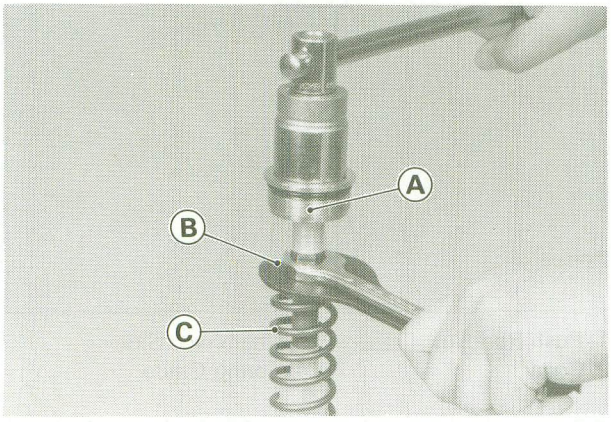
○ *Pull up the push rod slowly so as not to spill the fork oil out of the fork tube.*

● Install the fork spring into the inner tube and then set the spring seat in place.
● Pull the fork spring down while pulling up on the fork push rod puller (special tool) and insert the fork spring holder (special tool) under the push rod nut.



A. Fork Push Rod Puller: 57001-1298
B. Fork Spring Holder: 57001-1286

- Remove the fork push rod puller (special tool).
- Check the O-ring on the top plug, and replace it with a new one if damaged.
- Holding the top plug with a wrench, tighten the push rod nut against the top plug to the specified torque (see Exploded View).



A. Top Plug
B. Spring Seat
C. Fork Spring

- Pull out the fork spring holder (special tool), raise the outer tube, and screw the top plug into it.
- After installing the Front Fork, tighten the top plug to the specified torque (see Exploded View).
- Install the handlebar, and tighten the handlebar clamp bolts to the specified torque (see Exploded View).
- Install the front fork (see Front Fork Installation Notes in this chapter).

Spring Tension

Fork Spring Free Length

Standard:	**506.5 mm**
Service Limit:	**496 mm**

Rear Suspension (Uni-Trak)

Rear Shock Absorber:

Refer to the Base Manual, noting the following.

Shock Damping Adjustment

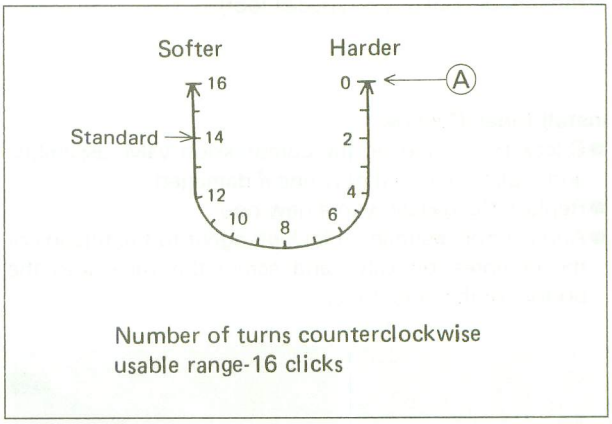
Rear Shock Absorber

Rebound Damping Adjustment

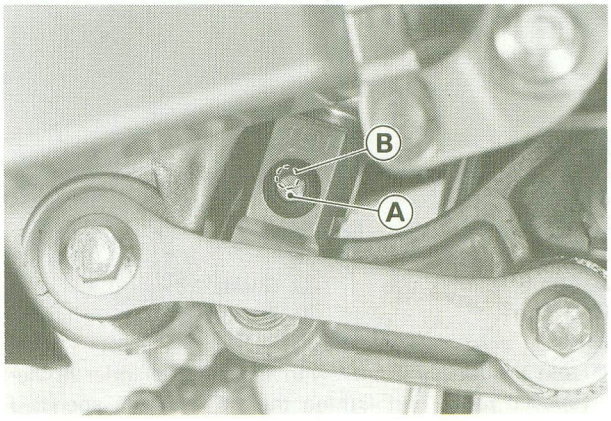
To adjust shock rebound damping, turn the rebound damping adjuster on the rear shock absorber lower end with the blade of a screwdriver until you feel a click.

If the damper setting feels too soft or too stiff, adjust it in accordance with the following table:

Rebound Damping Adjustment



A. Seated position adjuster turned fully clockwise.



A. Rebound Damping Adjuster
B. Mark

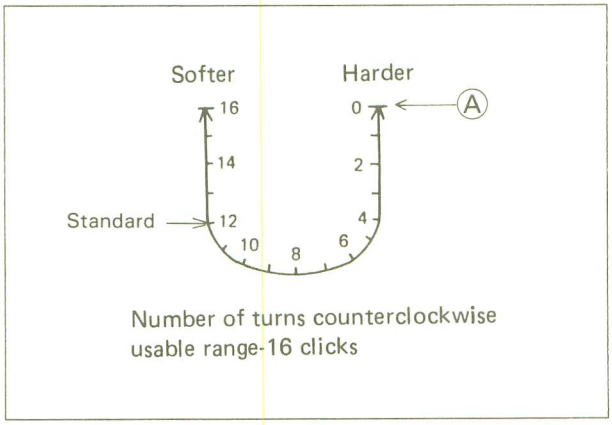
Gas Reservoir

Compression Damping Adjustment

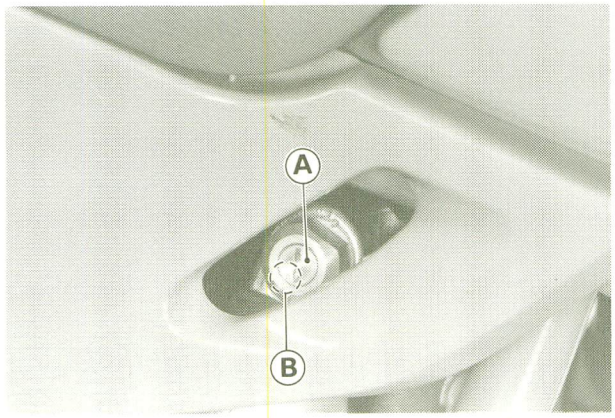
To adjust compression damping, turn the compression damping adjuster on the gas reservoir with the blade of a screwdriver until you feel a click.

If the damper setting feels too soft or too stiff, adjust it in accordance with the following table.

Compression Damping Adjustment



A. Seated position adjuster turned fully clockwise.



A. Compression Damping Adjuster B. Mark

Gas Pressure

The standard gas pressure is 1 000 kPa (10.0 kg/cm², 142 psi). Kawasaki recommends to maintain this standard gas pressure at any course and loading conditions.

Spring Preload Adjustment

Refer to the Base Manual, noting the following.

- Standard spring preload is 753 N (76.8 kg, 169 lb). The adjusting nut changes the preload 71 N (7.2 kg, 16 lb) turn.
- The standard adjusting nut position from the center of the upper mounting hole is 108 mm. The adjustable range is 92 ~ 117 mm.

Rear Shock Absorber Assembly Notes

Refer to the Base Manual, noting the following.

★If there are no leaks, inject the nitrogen gas up to the specified pressure. The specified gas pressure is 1 000 kPa (10 kg/cm², 142 psi).

Steering

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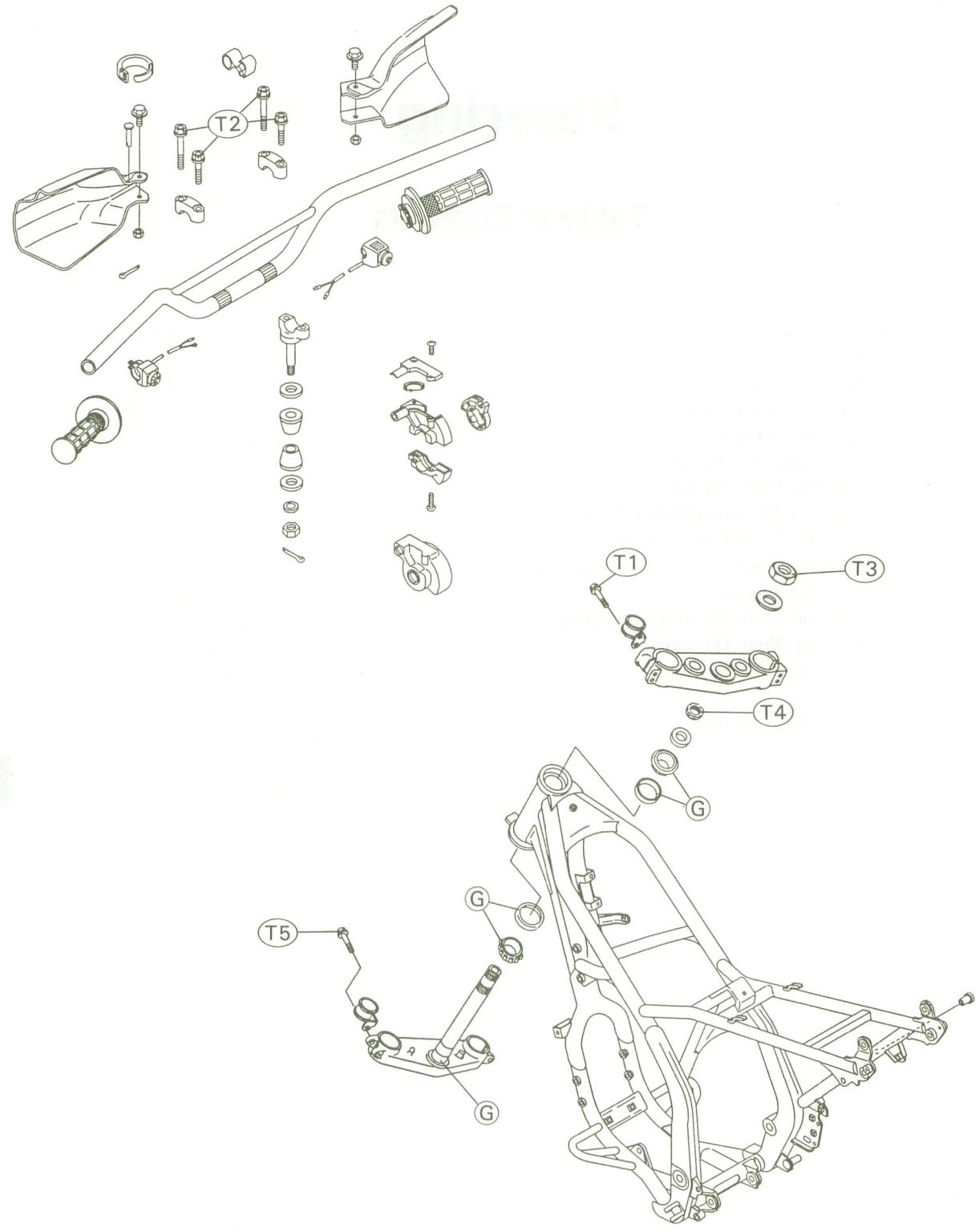
* : Refer to Base Manual

Exploded View



G : Apply grease liberally
T1 : 20 N-m (2.0 kg-m, 14.5 ft-lb)
T2 : 25 N-m (2.5 kg-m, 18.0 ft-lb)
T3 : 44 N-m (4.5 kg-m, 33 ft-lb)
T4 : Tighten all snugly, then loosen. Retighten to 4 N-m (0.4 kg-m, 35 in-lb)
T5 : 24 N-m (2.4 kg-m, 17.5 ft-lb)

Steering Adjustment

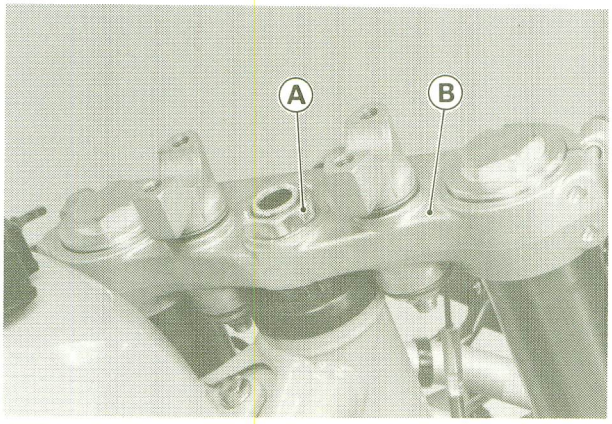
Steering Inspection

Refer to the Base Manual, noting the following.

- ●Remove the front disc cover.

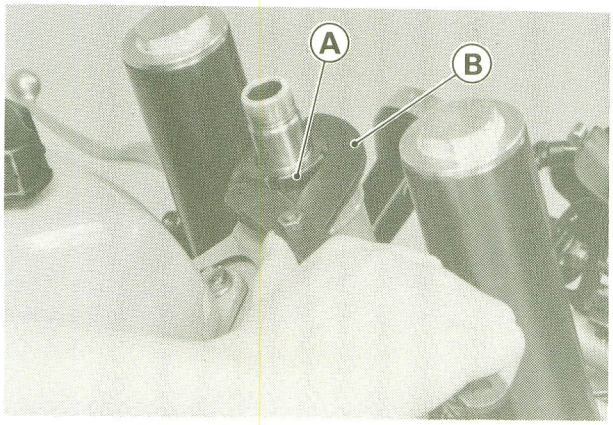
Steering Adjustment

- ●Remove the headlight and meter unit.
- ●Using the jack stand (special tool: 57001-1238) and stabilize the motorcycle.
- ●Place a stand or block under the engine so that the front wheel is raised off the ground.
- ●Remove the handlebar.
- ●Loosen the front fork upper clamp bolts.



A. Stem Head Nut B. Steering Stem Head

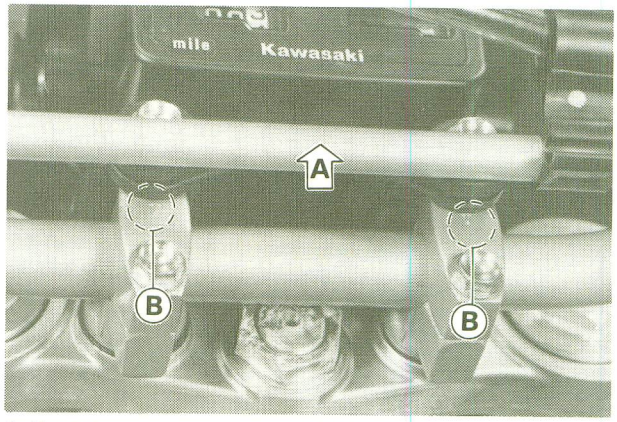
- ●Remove the steering stem head nut and washer, and take off the steering stem head.
- ●Turn the steering stem locknut with the stem nut wrench (special tool) to obtain the proper adjustment.



A. Stem Locknut
B. Stem Nut Wrench: 57001-1100

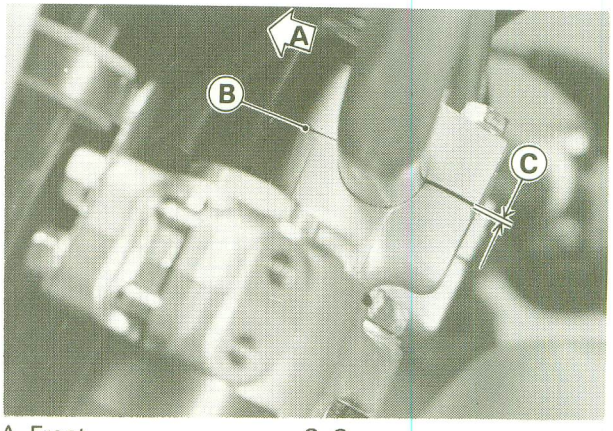
★If the steering is too tight, loosen the stem locknut a fraction of a turn; if the steering is too loose, tighten the locknut a fraction of a turn. Turn the locknut 1/8 turn at a time maximum.

- ●Install the steering stem head.
- ●Tighten the steering stem head nut to the specified torque (see Exploded View).
- ●Tighten the front fork upper clamp bolts to the specified torque (see Exploded View).
- ●Install the parts removed.
- ○Install the handlebar clamp so that the arrow on the clamp points at the front.



A. Front B. Arrow

- ○Tighten the handlebar clamp bolts to the specified torque (see Exploded View).
- ○Tighten the clamp bolts, front first and then the rear. If the handlebar clamp is correctly installed, there will be no gap at the front and a gap at the rear after tightening.



A. Front
B. No Gap
C. Gap

Frame

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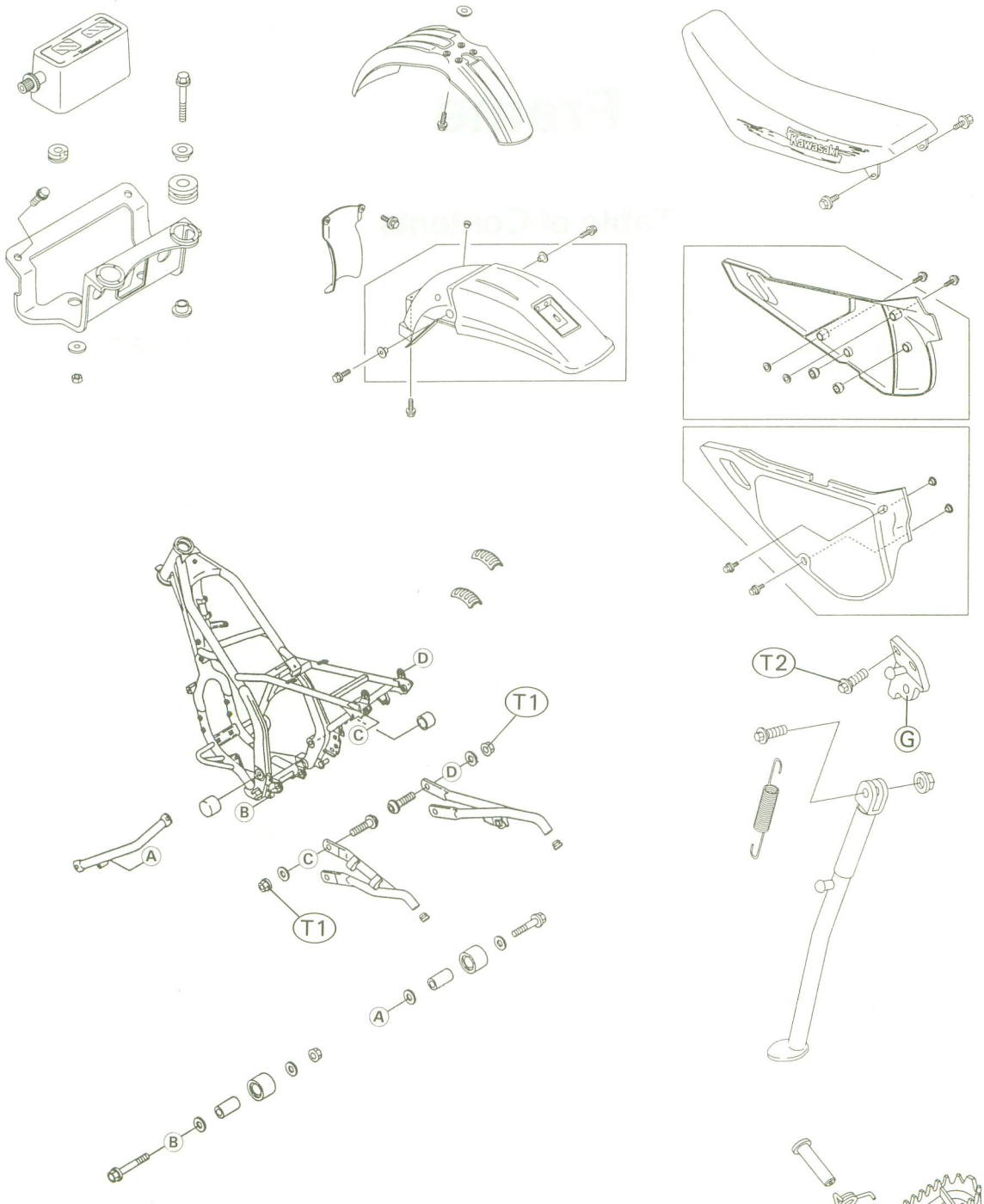
Exploded View



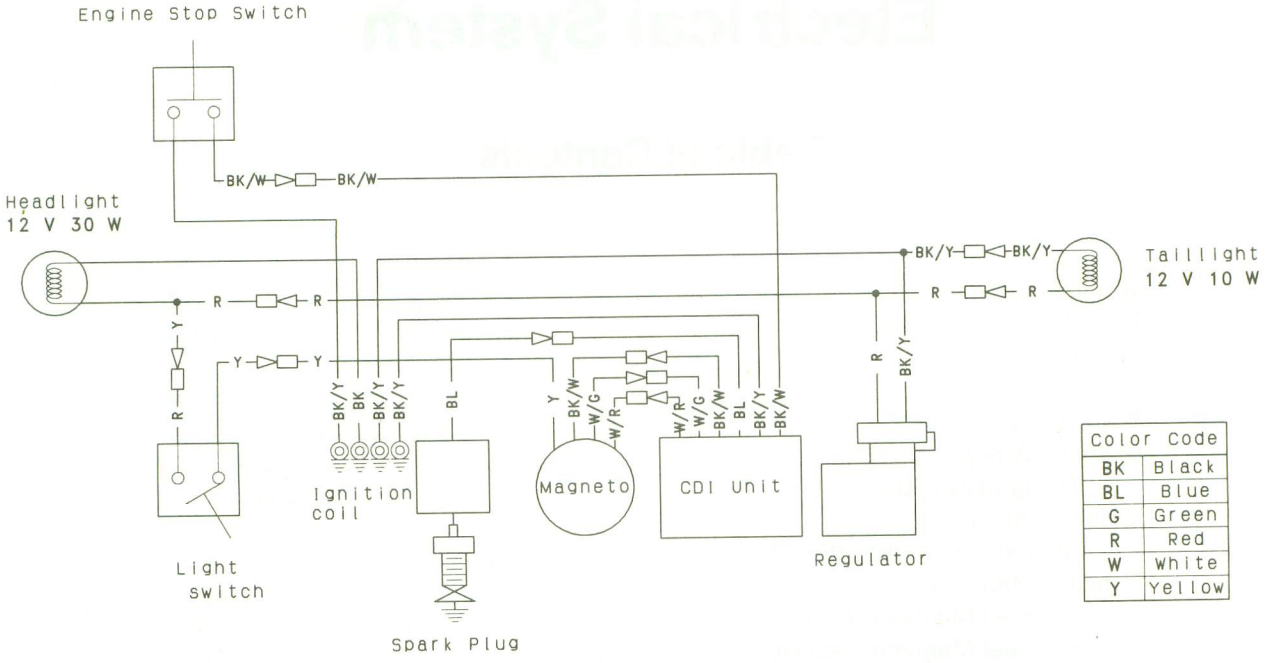
G :Apply grease
T1 :44 N-m (4.5 kg-m, 33 ft-lb)
T2 :64 N-m (6.5 kg-m, 47 ft-lb)

Electrical System

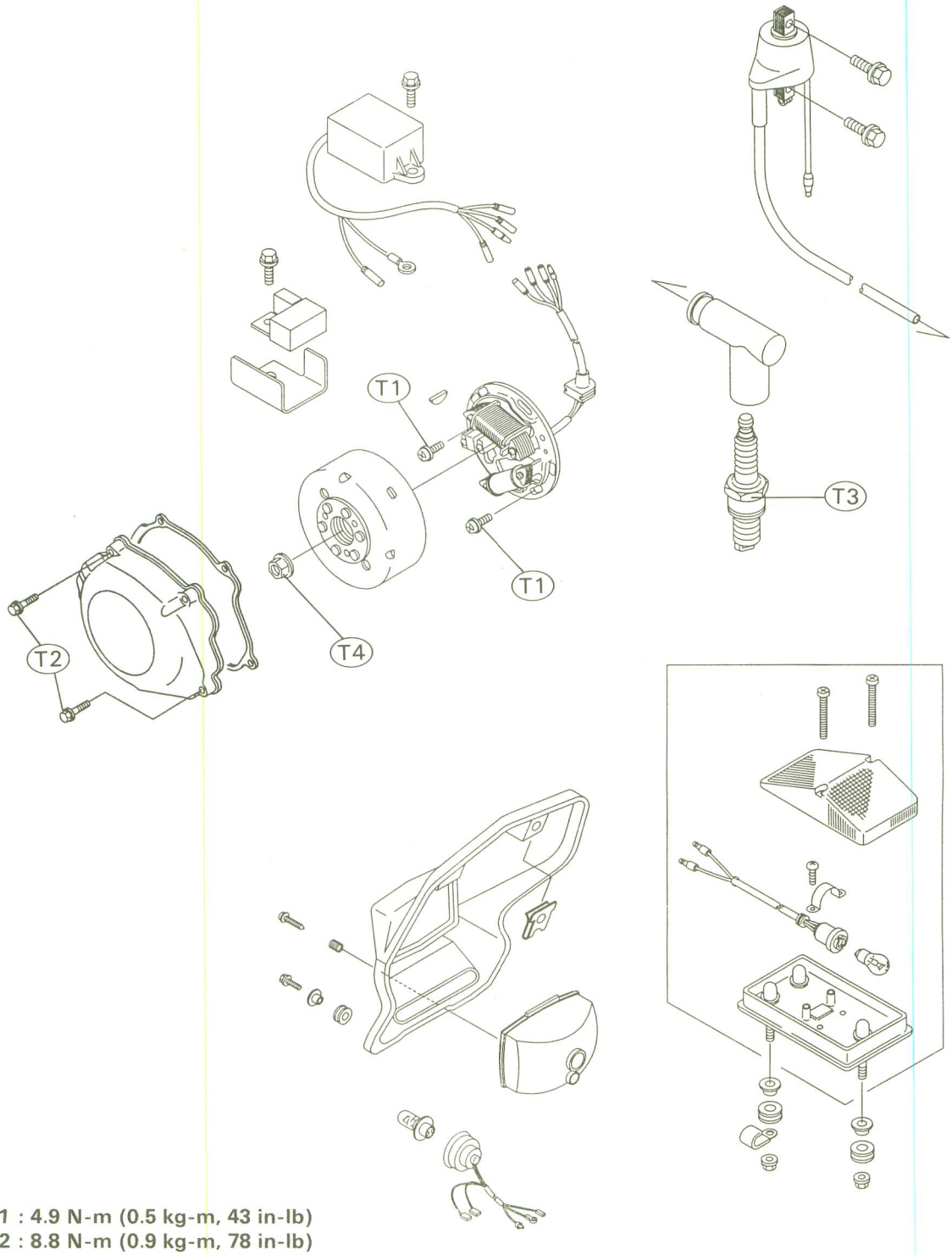
Table of Contents

* : Refer to Base Manual

Wiring Diagram



Exploded View



T1 : 4.9 N-m (0.5 kg-m, 43 in-lb)
T2 : 8.8 N-m (0.9 kg-m, 78 in-lb)
T3 : 27 N-m (2.8 kg-m, 20 ft-lb)
T4 : 78 N-m (8.0 kg-m, 58 ft-lb)

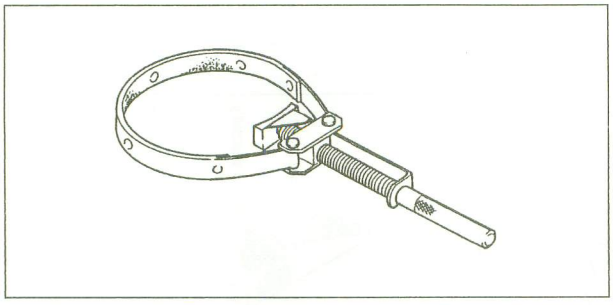
Specifications

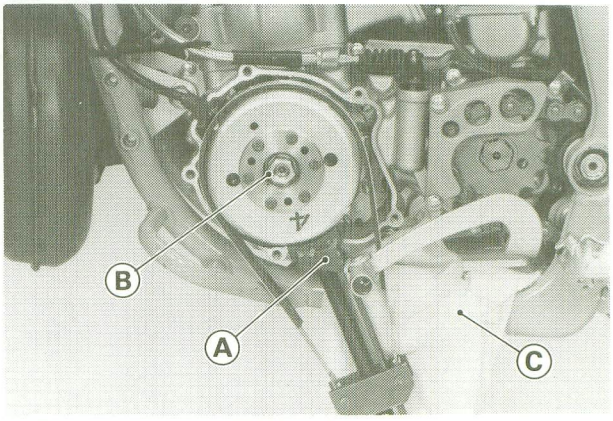
Item		Standard
Ignition System:		
Ignition timing		15° BTDC @6 000 r/min (rpm)
Ignition coil:		
	3 needle arcing distance	7 mm or more
	Primary winding resistance	0.2 Ω ±15%
	Secondary winding resistance	6.3 kΩ ±20%
CDI unit internal resistance		refer to 14-5
Spark plug:		NGK B9ES (C)(U) NGK BR9ES
	Spark plug gap	0.7 ~ 0.8 mm

(C) : Canadian model (U) : U.K. model

Special Tools

Refer to the Base Manual, noting the following.
Flywheel Holder: 57001-1313





A. Flywheel Holder: 57001-1313
B. Flywheel Nut C. Cloth

Flywheel Magneto

Flywheel Magneto Removal

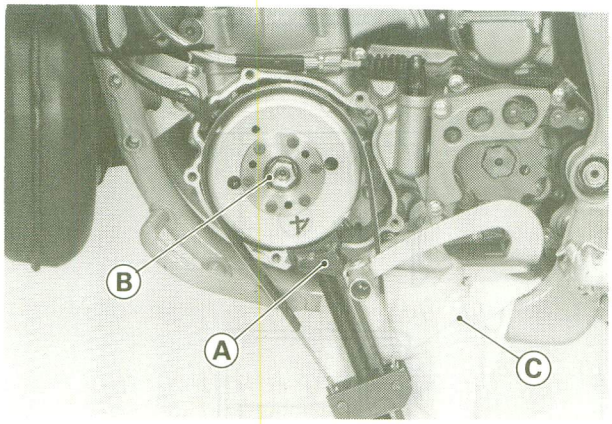
Refer to the Base Manual, noting the following.

- ● Remove the magneto cover.
- ● Using the flywheel holder (special tool) to hold the flywheel steady, and remove the flywheel nut.

Flywheel Magneto Installation

Refer to the Base Manual, noting the following.

- ○ Hold the flywheel steady with the flywheel holder (special tool), and tighten the flywheel nut to the specified torque.



A. Flywheel Holder: 57001-1313
B. Flywheel Nut C. Cloth

Ignition System

Ignition Coil Inspection

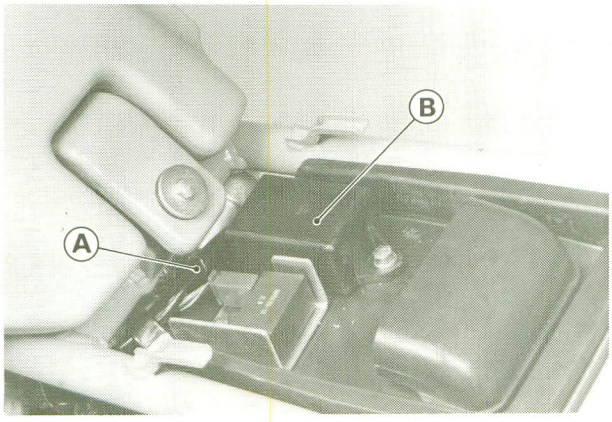
Measuring coil resistance:

Ignition Coil Winding Resistance

Primary windings: 0.2 Ω ±15%
Secondary windings: 6.3 kΩ ±20%

CDI Unit Inspection

- Remove the seat.
- Remove the fuel tank.
- Remove the left radiator cover.
- Disconnect the CDI unit lead.



A. CDI Unit Lead B. CDI Unit

⚠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 Hand Tester to the × 1kΩ range, connect the Tester to the terminals in the CDI unit lead, and check the internal resistance following the table.

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

CDI Unit Test Using the Kawasaki Hand Tester

[Unit : kΩ]

		Tester Positive (+) Lead Connection					
	Lead Color	BK/W	W/R	BL	W/G	BK/Y	BK/W
Tester Negtive (−) Lead Connection	BK/W	−	∞	∞	∞	∞	0
	W/R	14 ~ 40	−	∞	6 ~ 9	6 ~ 9	14 ~ 40
	BL	9.5 ~ 26	∞	−	3 ~ 5	3 ~ 5	9.5 ~ 26
	W/G	3 ~ 5	∞	∞	−	0	3 ~ 5
	BK/Y	3 ~ 5	∞	∞	0	−	3 ~ 5
	BK/W	0	∞	∞	∞	∞	−

∞: Infinity

Color Code
BK : Black G : Green W : White
BL : Blue R : Red Y : Yellow

Stator Coil Inspection

- Remove the seat and fuel tank.
- Disconnect the magneto lead.
- Zero the ohmmeter, and connect it as shown in the table.

Stator Coil Resistance

[Unit : Ω]

Connections	Range	Reading
Y − W/G	× 1 Ω	1.5 ~ 2.3
W/R − W/G	× 10 Ω	8 ~ 12
BK/W − W/G	× 100 Ω	300 ~ 450

- Note the resistance reading.

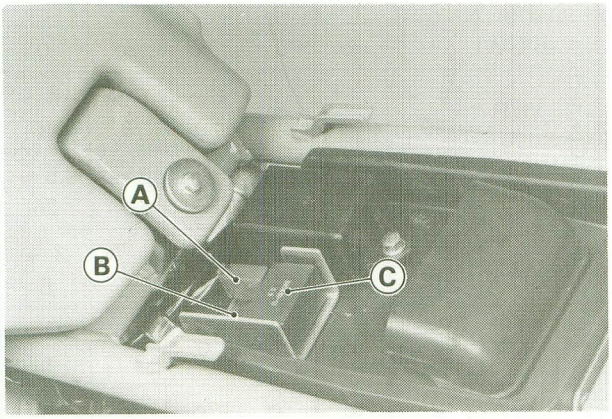
★If there is more resistance than shown in the table, the stator has a broken wire, the leads between the stator and the connector are open, or the connections are bad. Check the stator and the leads, and fix or replace the damaged parts.

★If there is much less resistance than shown in the table, the stator is shorted, or the leads between the stator and the connector is grounded. Check the stator and the leads, and fix or replace the damaged parts.

Lighting System

Regulator Inspection

- Remove the seat.
- Disconnect the regulator lead connector.
- Unscrew the mounting bolt, and remove the regulator.



A. Lead Connector
B. Mounting Bolt
C. Regulator

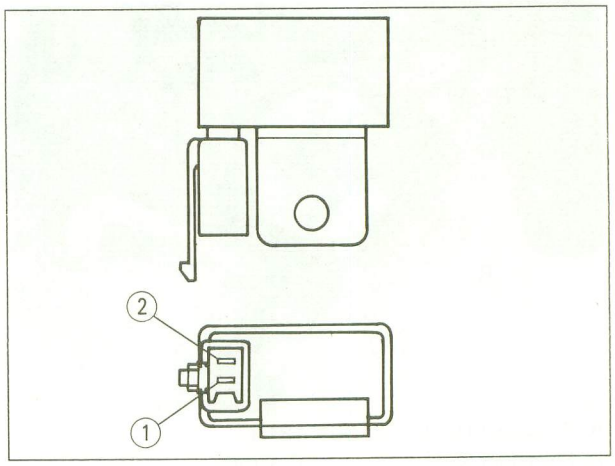
- Set the Kawasaki Hand Tester (special tool: 57001-983) to the × 1 kΩ range, connect the Tester to the terminals in the regulator lead connector, and check the internal resistance following the table.
- If the readings do not correspond to the table, replace the regulator.

Regulator Internal Resistance

[Unit : Ω]

		Meter Positive (+) Lead Connection	
	Lead	R	BK/Y
(−)*	R	−	∞
	BK/Y	∞	−

(*) : Meter Negative Lead Connection
∞ : Infinity



1. R Lead Terminal
2. BK/Y Lead Terminal

Appendix

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* : Refer to Base Manual

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