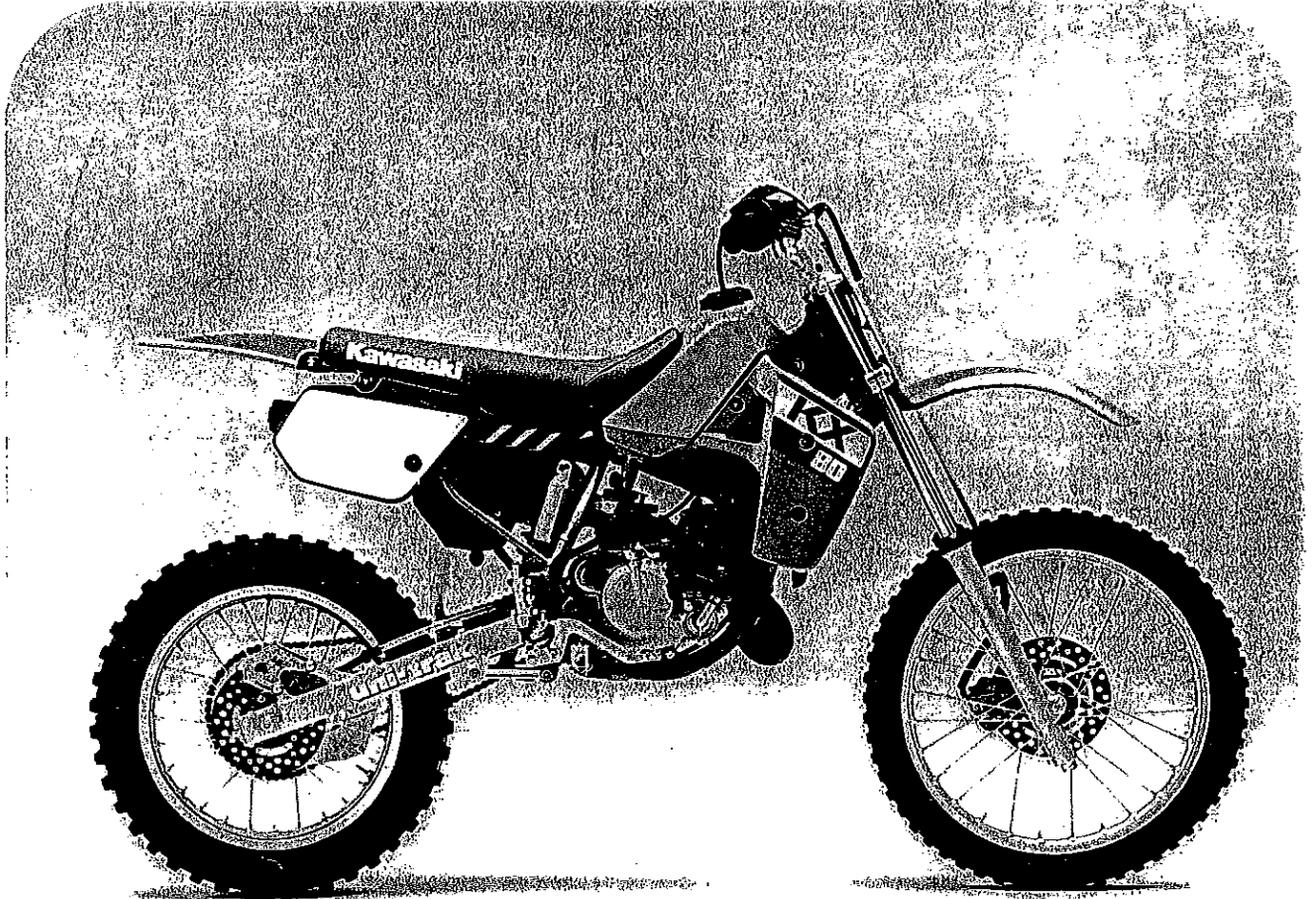


**Kawasaki**

**KX60  
KX80  
KDX80  
KX100**



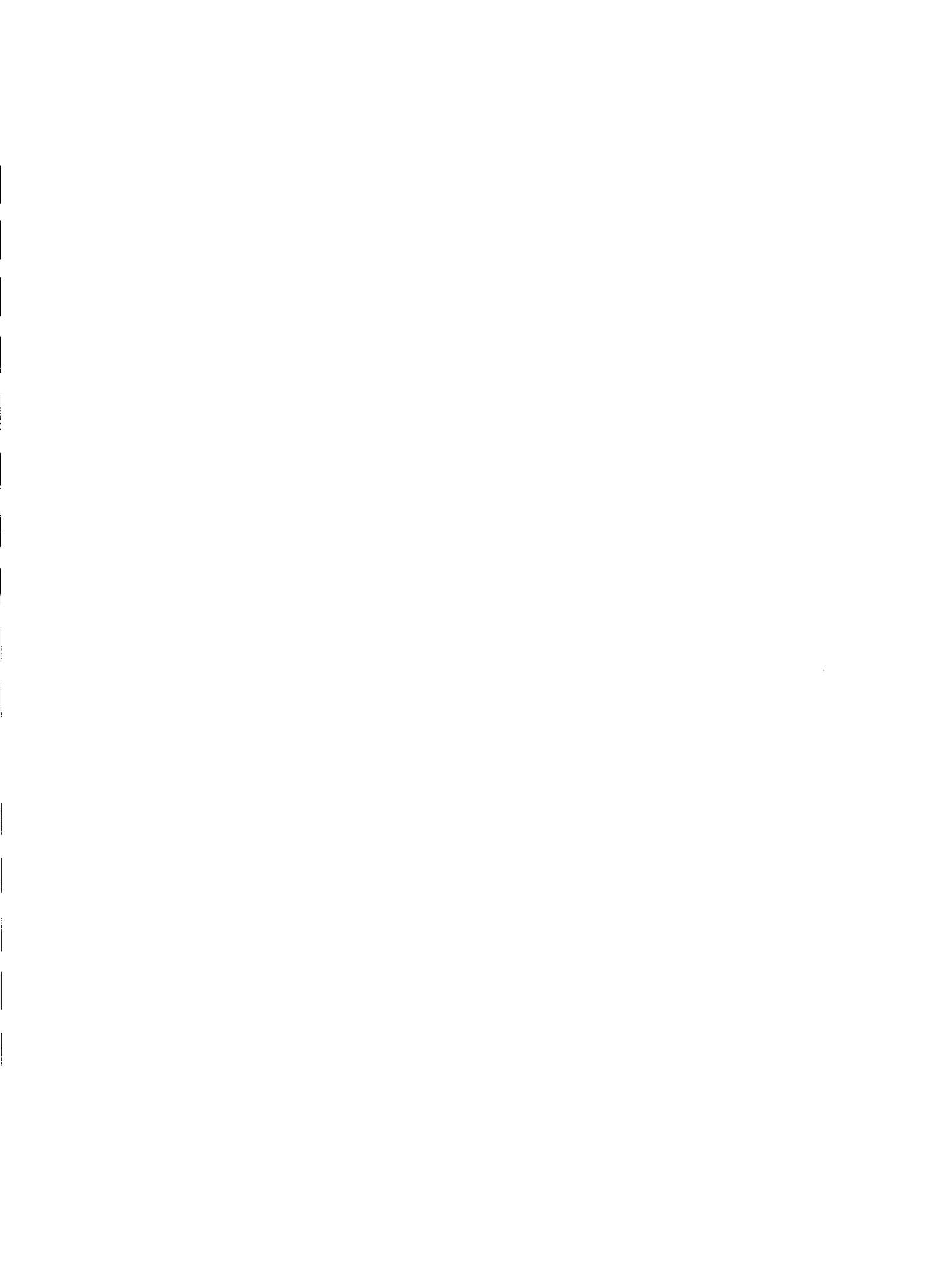
**Motorcycle  
Service Manual**

## Quick Reference Guide

<b>General Information</b>	<b>1</b>
<b>Fuel System</b>	<b>2</b>
<b>Cooling System</b>	<b>3</b>
<b>Engine Top End</b>	<b>4</b>
<b>Engine Right Side</b>	<b>5</b>
<b>Engine Removal / Installation</b>	<b>6</b>
<b>Engine Bottom End / Transmission</b>	<b>7</b>
<b>Wheels / Tires</b>	<b>8</b>
<b>Final Drive</b>	<b>9</b>
<b>Brakes</b>	<b>10</b>
<b>Suspension</b>	<b>11</b>
<b>Steering</b>	<b>12</b>
<b>Electrical System</b>	<b>13</b>
<b>Appendix</b>	<b>14</b>
<b>Supplement for 1989 ~ 1997 Models</b>	<b>15</b>
<b>Supplement-2000 Model</b>	<b>16</b>

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.





**KX60**  
**KX80**  
**KDX80**  
**KX100**

# **Motorcycle Service Manual**

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

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

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## 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)		



**WARNING  
CONTAINS  
ASBESTOS**

Breathing asbestos  
dust is dangerous  
to health

Follow safety  
instructions

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

- Brake Shoes or Pads
- Clutch Friction Material
- Gaskets
- Insulators

**SAFETY INSTRUCTIONS**

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

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

# Foreword

This 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.

We recommend that all repairs and scheduled maintenance be performed in accordance with this service manual.

To get the longest life out of your motorcycle:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki Motorcycle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki motorcycles are introduced by the Special Tool Manual. Genuine parts provided as spare parts are listed in the Parts Catalog.
- Follow the procedures in this manual carefully. Don't take shortcuts.
- Remember to keep complete records of maintenance and repair with dates and any new parts installed.

## How to Use this Manual

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

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

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

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

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

### WARNING

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

### CAUTION

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

This manual contains five 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.*

● Indicate a procedural step or work to be done.

○ Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a WARNING, CAUTION, or NOTE.

★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

☆ Indicates a conditional sub-step or what action to take based upon the results of the conditional step it follows.

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

# General Information

## Table of Contents

Before Servicing ..... 1-2

Model Identification ..... 1-4

General Specifications ..... 1-8

Periodic Maintenance Chart ..... 1-14

Torque and Locking Agent ..... 1-17

Cable Routing .....1-20

Wire Routing .....1-21

Hose Routing .....1-22

## 1-2. GENERAL INFORMATION

### Before Servicing

Before starting to service a motorcycle, careful reading of the applicable section is recommended to eliminate unnecessary work. Photographs, diagrams, notes, cautions, warnings, and detailed descriptions have been included wherever necessary. Nevertheless, even a detailed account has limitations, a certain amount of basic knowledge is also required for successful work.

#### Especially note the following:

- (1) **Dirt**

Before removal and disassembly, clean the motorcycle. Any dirt entering the engine or other parts will work as an abrasive and shorten the life of the motorcycle. For the same reason, before installing a new part, clean off any dust or metal filings.
- (2) **Tightening Sequence**

Generally, when installing a part with several bolts, nuts, or screws, they should all be started in their holes and tightened to a snug fit. Then tighten them evenly in a cross pattern. This is to avoid distortion of the part and/or causing gas or oil leakage. Conversely when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter of turn and then remove them.

Where there is a tightening sequence indication in this Service Manual, the bolts, nuts, or screws must be tightened in the order and method indicated.
- (3) **Torque**

The torque values given in this Service Manual should always be adhered to. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.
- (4) **Force**

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

Watch for sharp edges, especially during major engine disassembly and assembly. Protect your hands with gloves or a piece of thick cloth when lifting the engine or turning it over.
- (6) **High Flash-point Solvent**

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

Do not reuse a gasket or O-ring once it has been in service. The mating surfaces around the gasket should be free of foreign matter and perfectly smooth to avoid oil or compression leaks.
- (8) **Liquid Gasket, Non-permanent Locking Agent**

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

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

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

(11) Oil Seal and Grease Seal

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

When pressing in a seal which has manufacturer's marks, press it in with the marks facing out. Seals should be pressed into place using a suitable driver, which contacts evenly with the side of the seal, until the face of the seal is even with the end of the hole.

(12) Seal Guide

A seal guide is required for certain oil or grease seals during installation to avoid damage to the seal lips. Before a shaft passes through a seal, apply a little oil, preferably high temperature grease on the lips to reduce rubber to metal friction.

(13) Circlip, Retaining Ring

Replace any circlips and retaining rings that were removed with new ones, as removal weakens and deforms them. When installing circlips and retaining rings, take care to compress or expand them only enough to install them and no more.

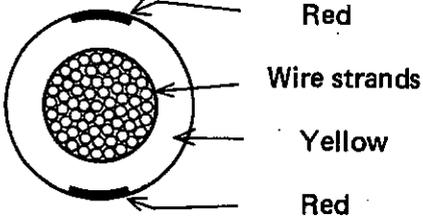
(14) Lubrication

Engine wear is generally at its maximum while the engine is warming up and before all the rubbing surfaces have an adequate lubricative film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface which has lost its lubricative film. Old grease and dirty oil should be cleaned off. Deteriorated grease has lost its lubricative quality and may contain abrasive foreign particles.

Don't use just any oil or grease. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended. This manual makes reference to molybdenum disulfide grease (MoS<sub>2</sub>) in the assembly of certain engine and chassis parts. Always check manufacturer recommendations before using such special lubricants.

(15) Electrical Wires

All the electrical wires are either single-color or two-color and, with only a few exceptions, must be connected to wires of the same color. On any of the two-color wires there is a greater amount of one color and a lesser amount of a second color, so a two-color wire is identified by first the primary color and then the secondary color. For example, a yellow wire with thin red strips is referred to as a "yellow/red" wire; it would be a "red/yellow" wire if the colors were reversed to make red the main color.

Wire (cross-section)	Name of Wire Color
	Yellow/red

(16) Replacement Parts

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

(17) Inspection

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

- |              |               |           |      |
|--------------|---------------|-----------|------|
| Abrasion     | Crack         | Hardening | Warp |
| Bent         | Dent          | Scratch   | Wear |
| Color change | Deterioration | Seizure   |      |

(18) Service Data

Numbers of service data in this text have the following meanings:

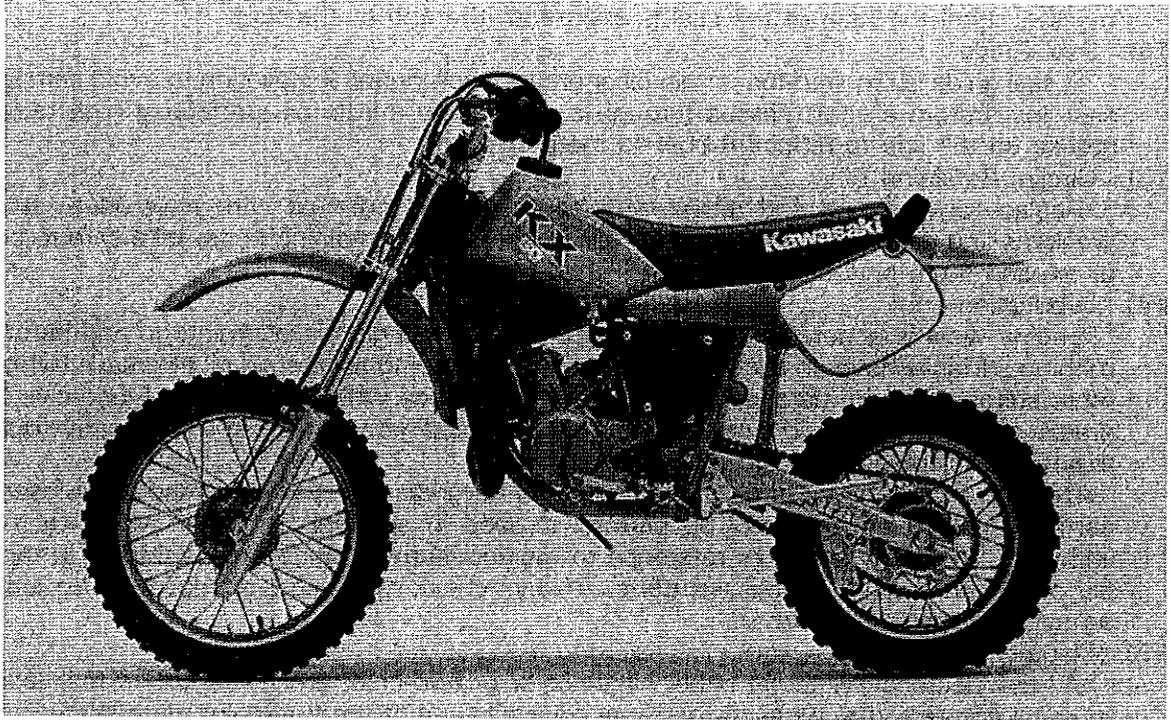
"Standards": Show dimensions or performances which brand-new parts or systems have.

"Service limits": Indicate the usable limits. If the measurement shows excessive wear or deteriorated performance, replace the damaged parts.

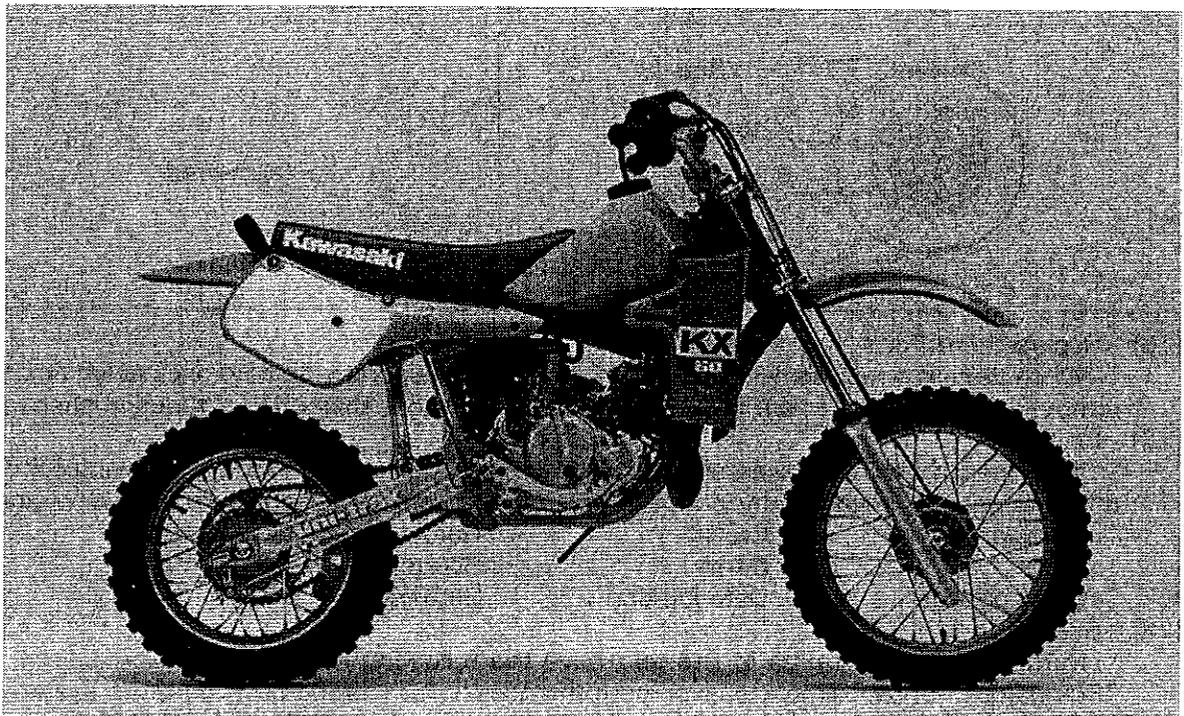
## 1-4 GENERAL INFORMATION

.....  
**Model Identification**  
.....

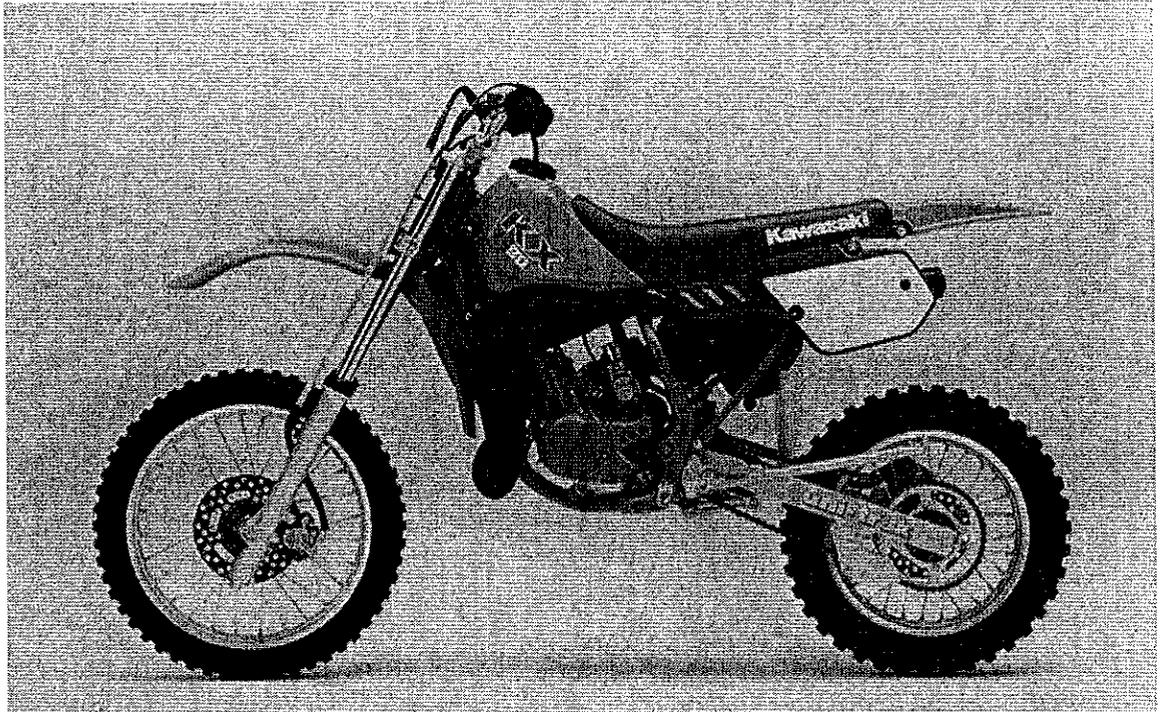
### **KX60-B4 Left Side View**



### **KX60-B4 Right Side View**



**KX80-L1/M1 Left Side View**

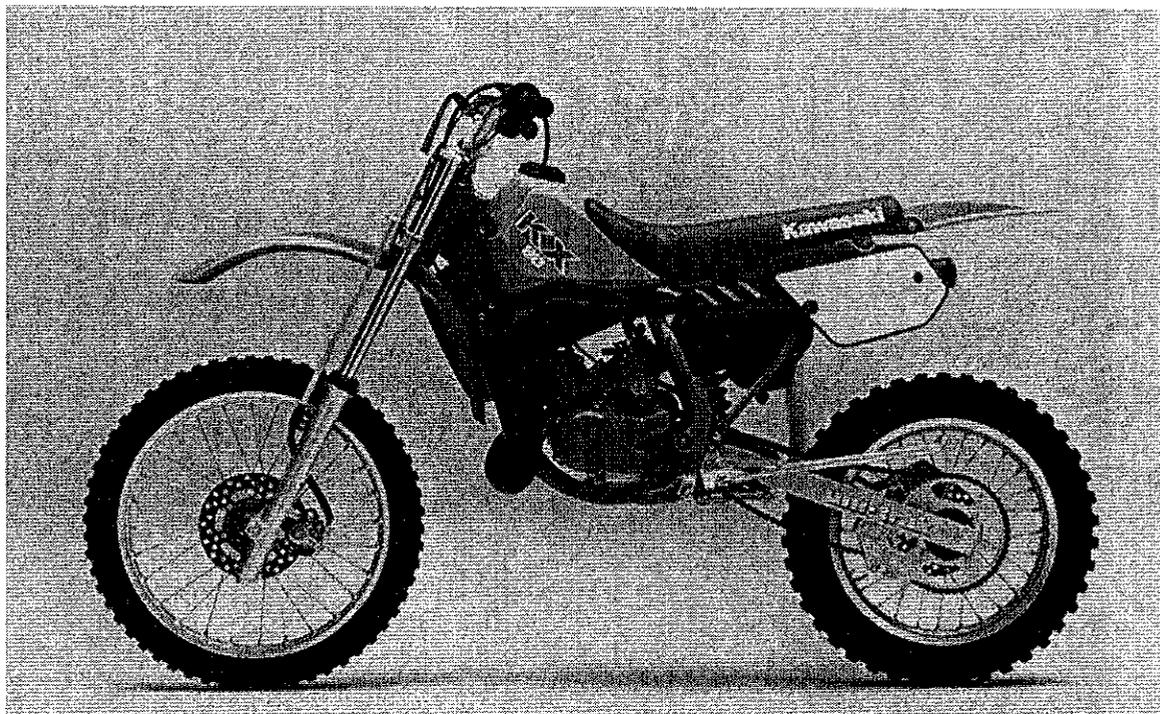


**KX80-L1/M1 Right Side View**

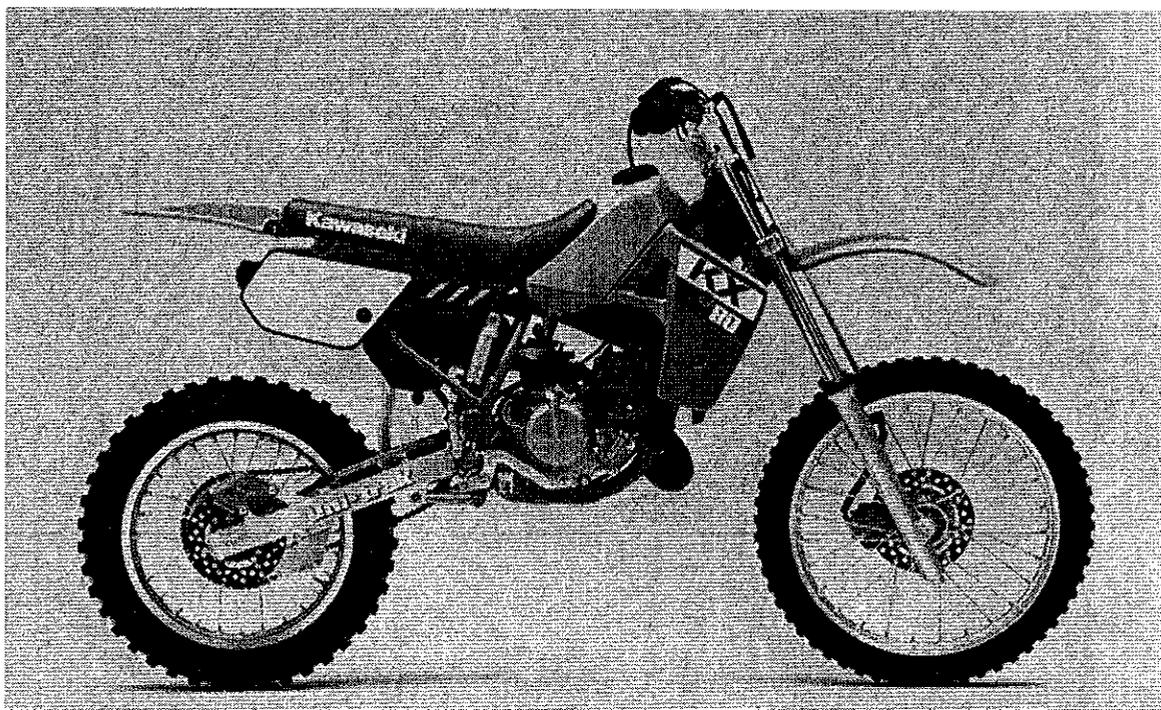


**1-6 GENERAL INFORMATION**

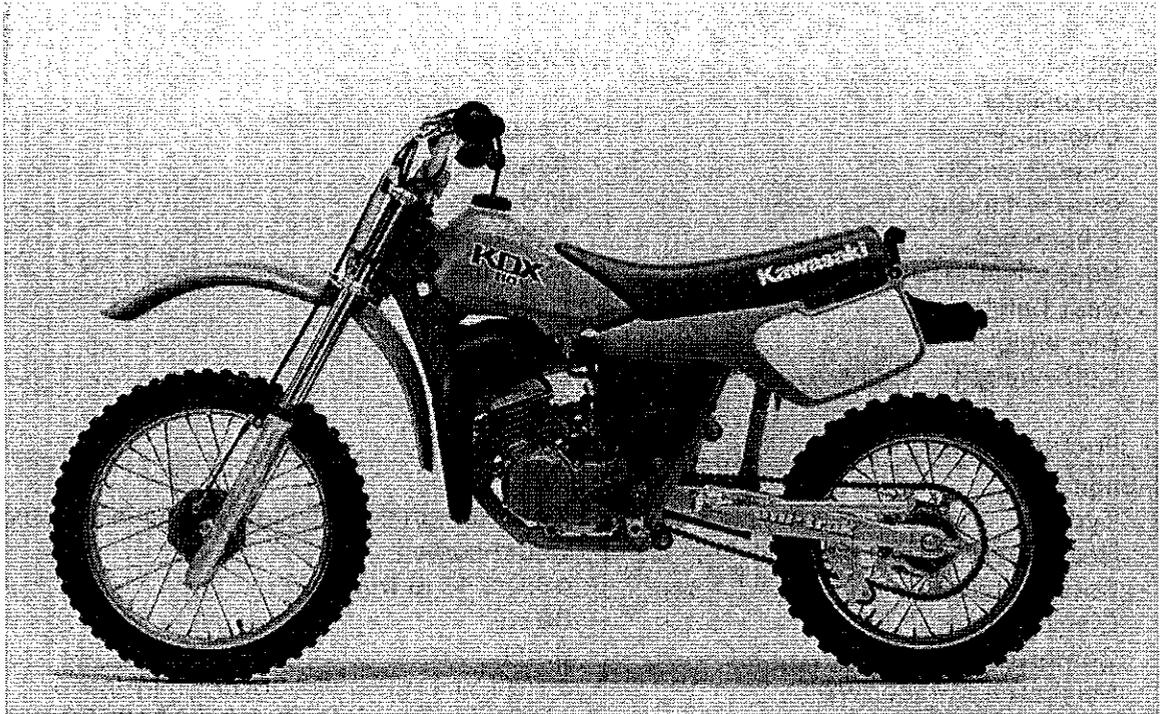
**KX80-N1/P1 Left Side View**



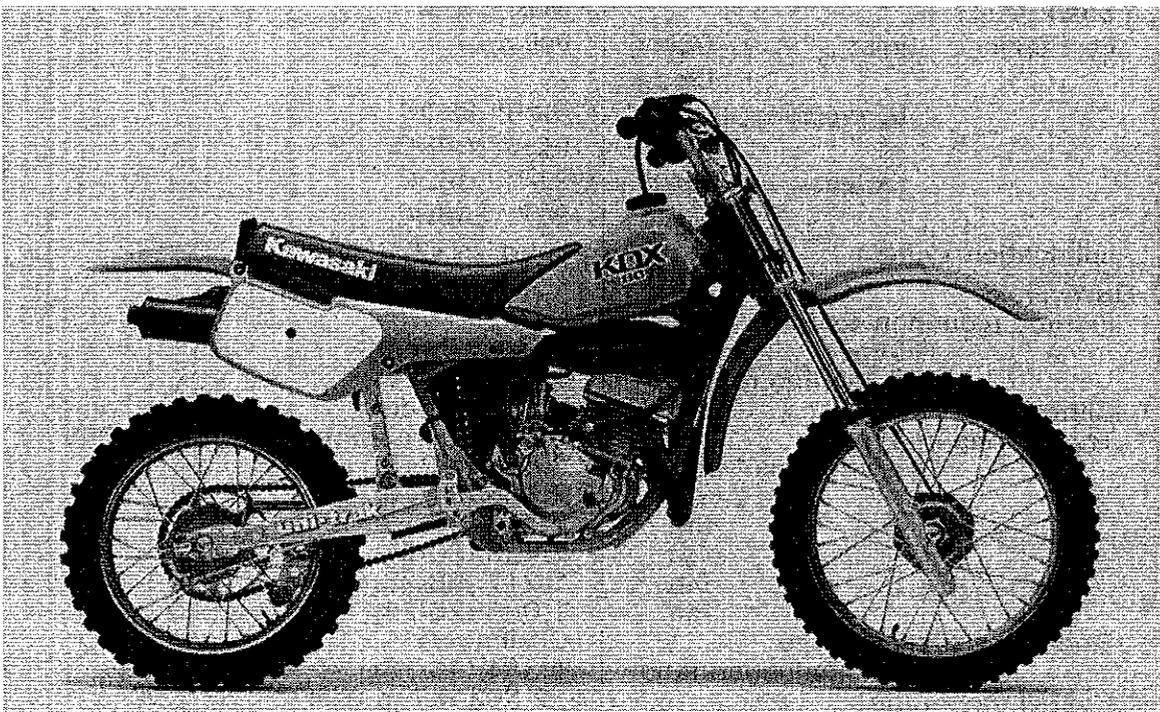
**KX80-N1/P1 Right Side View**



**KDX80-C5 Left Side View**



**KDX80-C5 Right Side View**



## 1-8 GENERAL INFORMATION

### General Specifications

Items	KX60-B4
<b>Dimensions:</b>	
Overall length	1560 mm
Overall width	705 mm
Overall height	915 mm
Wheelbase	1080 mm
Road clearance	250 mm
Seat height	710 mm
Dry weight	50.5 kg
Curb weight: Front	26.0 kg
Rear	27.5 kg
Fuel tank capacity	3.5 L
<b>Engine:</b>	
Type	2-stroke, single cylinder, piston reed valve
Cooling system	Liquid-cooled
Bore and stroke	43.0 x 41.6 mm
Displacement	60 ml
Compression ratio	8.4:1
Maximum horsepower	11.0 kW (15PS) @ 12000 r/min (rpm)
Maximum torque	9.0 N-m(0.92 kg-m, 6.7 ft-lb)@ 10500 r/min (rpm)
Carburetion system	Carburetor, Mikuni VM24SS
Starting system	Primary kick
Ignition system	CDI
Ignition timing	18.5° BTDC @ 6000 r/min (rpm)
Spark plug	NGK B9EG
Port timing: Inlet	Open Full open
	Close —
Scavenging	Open 62.5° BBDC
	Close 62.5° ABDC
Exhaust	Open 92° BBDC
	Close 92° ABDC
Lubrication system	Petrol mix (32:1)
<b>Drive Train:</b>	
Primary reduction system:	
Type	Gear
Reduction ratio	3.500 (77/22)
Clutch type	Wet, multi disc
Transmission: Type	6-speed, constant mesh, return shift
Gear ratios: 1st	2.846 (37/13)
2nd	2.125 (34/16)
3rd	1.722 (31/18)
4th	1.428 (30/21)
5th	1.217 (28/23)
6th	1.083 (26/24)
Final drive system: Type	Chain drive
Reduction ratio	3.384 (44/13)
Overall drive ratio	12.833 @ Top gear
Transmission oil: Grade	SE class
Viscosity	SAE 10W30 or 10W40
Capacity	0.6 L

(Continued on next page.)

Item	KX60-B4
<b>Frame:</b>	
Type	Tubular, semi-double cradle
Steering angle	45° to either side
Caster (rake angle)	28°
Trail	65 mm
Front tire:      Make/Type	DUNLOP K195, Tube type
Size	60/100 – 14
Rear tire:      Make/Type	DUNLOP K195, Tube type
Size	80/100 – 12
Front suspension: Type	Telescopic fork (Air fork)
Wheel travel	200 mm
Rear suspension: Type	Swingarm (Uni-trak)
Wheel travel	200 mm
Brake type:      Front and Rear	Internal expansion, leading-trailing
Brake drum inside diameter × length	90 × 20 mm (3.5 × 0.8 in)

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

# 1-10 GENERAL INFORMATION

Items	KX80-L1/M1/N1/P1
<b>Dimension:</b> Overall length Overall width Overall height Wheelbase Road clearance Seat height Dry weight Curb weight:   Front Rear Fuel tank capacity	1810 mm (N)(p) 1905 mm 745 mm 1050 (N)(P) 1080 mm 1250 (N)(P) 1290 mm 335 mm (N)(P) 365 mm 840 mm (N)(P) 870 mm 61.0 kg (N)(P) 64.0 kg 31.5 kg (N)(P) 32.5 kg 33.5 kg (N)(P) 35.5 kg 4.5 L
<b>Engine:</b> Type Cooling system Bore and stroke Displacement Compression ratio Maximum horsepower Maximum torque Carburetion system Starting system Ignition system Ignition timing Spark plug Port timing:   Inlet                   Open Close Scavenging       Open Close Exhaust            Open Close Lubrication system	2-stroke, single cylinder, piston reed valve Liquid-cooled 48.0 × 45.8 mm (M)(P) 47.0 × 45.8 mm 82 mL (M)(P) 79 mL 9.4 : 1 (M)(P) 9.1 : 1 17.7 kW (24 PS) @ 12000 r/min (rpm) 14.2 N-m (1.45 kg-m, 10.5 ft-lb) @ 11000 r/min (rpm) Carburetor, Keihin PE28 Primary kick CDI 12° BTDC @ 12000 r/min (rpm) NGK B9EG (C)(U) NGK BR9EG Full open - 62.5° BBDC 62.5° ABDC 93.5° BBDC 93.5° ABDC Petrol mix (32 : 1)
<b>Drive Train:</b> Primary reduction system: Type Reduction ratio Clutch type Transmission: Type Gear ratios:   1st 2nd 3rd 4th 5th 6th Final drive system: Type Reduction ratio Overall drive ratio Transmission oil: Grade Viscosity Capacity	Gear 3.400 (68/20) Wet, multi disc 6-speed, constant mesh, return shift 2.538 (33/13) 1.875 (30/16) 1.500 (27/18) 1.250 (25/20) 1.090 (24/22) 0.956 (22/23) Chain drive 3.692 (48/13) (N)(P) 4.076 (53/13) 12.008 @ Top gear (N)(P) 13.258 @ Top gear SE class SAE 10W30 or 10W40 0.7 L

(Continued on next page.)

Item	KX80-L1/M1/N1/P1
<b>Frame:</b>	
Type	Tubular, semi-double cradle
Steering angle	45° to either side
Caster (rake angle)	28°
Trail	95 mm (N) (P) 109 mm
Front tire: Make/Type Size	DUNLOP K490 (E) K990, Tube type 70/100-17 40 M (N) (P) 70/100-19 42 M
Rear tire: Make/Type Size	DUNLOP K595 (N) (P) K490 (E) K990 Tube type 90/100-14 49 M (N) (P) 90/100-16 52 M
Front suspension: Type Wheel travel	Telescopic fork (Air fork) 275 mm (N) (P) 265 mm
Rear suspension: Type Wheel travel	Swing arm (uni-trak) 275 mm (N) (P) 250 mm
Brake type: Front and Rear	Single disc
Effective disc diameter: Front Rear	170 mm 150 mm

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

(M) : KX80-M  
(N) : KX80-N  
(P) : KX80-P

(C) : Canadian Model  
(U) : U.K. Model  
(E) : European Model

## 1-12 GENERAL INFORMATION

Items	KDX80-C5
<b>Dimensions:</b> Overall length Overall width Overall height Wheelbase Road clearance Seat height Dry weight Curb weight: Front Rear Fuel tank capacity	1760 mm 725 mm 940 mm 1224 mm 236 mm 745 mm 60.5 kg 31.0 kg 33.0 kg 4.7 L
<b>Engine:</b> Type Cooling system Bore and stroke Displacement Compression ratio Maximum horsepower Maximum torque Carburetion system Starting system Ignition system Ignition timing Spark plug Port timing: Inlet Open Close Scavenging Open Close Exhaust Open Close Lubrication system	2-stroke, single cylinder, piston reed valve Air-cooled 48.0 x 45.8 mm 82 mL 8.3:1 11.8 kW (16PS) @9000 r/min (rpm) 12.6 N-m (1.28 kg-m, 9.3 ft-lb) @8500 r/min (rpm) Carburetor, Mikuni VM26SS Primary kick CDI 25° BTDC @6000 r/min (rpm) NGK B8ES Full open — 62.0° BBDC 62.0° ABDC 94.0° BBDC 94.0° ABDC Petrol mix (32:1)
<b>Drive Train:</b> Primary reduction system: Type Reduction ratio Clutch type Transmission: Type Gear ratios: 1st 2nd 3rd 4th 5th 6th Final drive system: Type Reduction ratio Overall drive ratio Transmission oil: Grade Viscosity Capacity	Gear 3.500 (77/22) Wet, multi disc 6-speed, constant mesh, return shift 2.846 (37/13) 2.125 (34/16) 1.722 (31/18) 1.428 (30/21) 1.217 (28/23) 1.083 (26/24) Chain drive 3.428 (48/14) 13.000 @Top gear SE class SAE 10W30 or 10W40 0.55 L

(Continued on next page.)

Item	KDX80-C5
<b>Frame:</b>	
Type	Tubular, semi-double cradle
Steering angle	45° to either side
Caster (rake angle)	28°
Trail	87 mm
Front type:   Type Size	DUNLOP K195, Tube type 70/100—16 39 M
Rear type:    Type Size	DUNLOP K195, Tube type 80/100—14 43 M
Front suspension: Type Wheel travel	Telescopic fork 170 mm
Rear suspension: Type Wheel travel	Swing arm (uni-trak) 170 mm
Brake type:   Front and Rear	Internal expansion, leading-trailing
Brake drum inside diameter:   Front Rear	94 x 20 mm 90 x 20 mm

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

# 1-14 GENERAL INFORMATION

## Periodic Maintenance Chart

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

(KX60-B)

OPERATION		FREQUENCY				
		Each race	Every 3 races	Every 5 races	Every 10 races	As required
ENGINE	Clutch—adjust	•				
	Clutch 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—clean/check †		•			
	Cylinder—inspect †		•			
	Piston/cylinder clearance—inspect		•			
	Small end bearing—check †		•			
	Main bearing—check †				•	
	Big end bearings—check †				•	
	Exhaust pipe O-ring—replace			•		
	Engine sprocket—check †			•		
	Coolant—change					•
Radiator hoses, connections—check †	•					
CHASSIS	Brake adjustment—check †	•				
	Brake wear—check †			•		
	Spoke tightness and rim runout—check †	•				
	Drive chain—adjust	•				
	Drive chain—lubricate	•				
	Drive chain wear—check †			•		
	Chain slipper and guide—replace			If damaged		
	Front fork—inspect/clean	•				
	Front fork oil—change			•		
	Nuts, bolts, fasteners—check †	•				
	Fuel hose—replace			Every 4 years		
	Fuel system—clean	•				
	Steering play—check †	•				
	Steering stem bearing—grease			•		
	Rear sprocket—check †			•		
	General lubrication—perform	•				
	Brake camshaft—grease			•		
	Wheel bearing—check †				•	
	Rear shock sleeve—grease			•		
	Uni-trak link, bearing wear—check †			•		
Uni-trak arm, sleeve wear—check †			•			
Swing arm—lubricate			•			

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

(KX80-L/M/N/P)

OPERATION \ FREQUENCY		Each	Every	Every	Every	As	
		race	3 races	5 races	10 races	required	
ENGINE	Clutch—adjust	•					
	Clutch 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—clean/check †		•				
	Cylinder—inspect		•				
	Piston/cylinder clearance—inspect		•				
	Small end bearing—check †		•				
	Main bearing—check †				•		
	Big end bearings—check †				•		
	Exhaust pipe O-ring—replace			•			
	Engine sprocket—check †			•			
	Coolant—change					•	
Radiator hoses, connections—check †	•						
CHASSIS	Brake adjustment—check †	•					
	Brake 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	•					
	Drive chain—lubricate	•					
	Drive chain wear—check †			•			
	Chain slipper and guide—replace			If damaged			
	Front fork—inspect/clean	•					
	Front fork oil—change			•			
	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—check †				•		
Swing arm and Uni-Trak linkage pivots—grease			•				
Swing arm and Uni-Trak linkage pivots—check †			•				
Rear shock oil—replace		1st time after 2 races, then every 5 races					

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

# 1-16 GENERAL INFORMATION

(KDX80-C5)

FREQUENCY OPERATION		1 st	6 th	12 th	18 th	24 th
		month	month	month	month	month
ENGINE	Clutch—adjust	•	•	•	•	•
	Clutch 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—clean/check †			•		•
	Cylinder—inspect †			•		•
	Piston/cylinder clearance—inspect †			•		•
	Small end bearing—check †			•		•
	Main bearing—check †			•		•
	Big end bearings—check †			•		•
	Exhaust pipe O-ring—replace			•		•
	Engine sprocket—check †			•		•
Spark Arrester—cleaning	Every 4000 km (2500 mi)					
CHASSIS	Brake adjustment—check †	•	•	•	•	•
	Brake wear—check †		•	•	•	•
	Spoke tightness and rim runout—check †	•	•	•	•	•
	Drive chain—adjust	•	Every 300 km (200 mi)			
	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					•
	Nuts, bolts, fasteners—check †	•		•		•
	Fuel hose—replace	Every 4 years				
	Fuel system—clean	•	•	•	•	•
	Steering play—check †	•	•	•	•	•
	Steering stem bearing—grease					•
	Rear sprocket—check †		•	•	•	•
	General lubrication—perform	•	•	•	•	•
	Brake camshaft—grease					•
	Wheel bearing—check †					•
Rear shock sleeve—grease		•	•	•	•	
Uni-trak link, bearing wear—check †		•	•	•	•	
Uni-trak arm, sleeve wear—check †		•	•	•	•	
Swing arm-lubricate		•	•	•	•	

† 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 overtightened 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 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	
<b>Cooling System:</b>				
Water Pump Impeller Bolt	8.5	0.85	73 in-lb	
<b>Coolant Drain Plug:</b>				
Pump Cover (KX60)	25	2.5	18	
(KX80)	8	0.8	69 in-lb	
Cylinder (KX80)	9	0.9	78 in-lb	
<b>Engine Top End:</b>				
Cylinder Head Bolts or Nuts	25	2.5	18	
Spark Plug	27	2.8	20	
Cylinder Nuts (KX80)	25	2.5	18	
Cylinder Drain Plug	9	0.9	78 in-lb	
<b>Engine Right Side:</b>				
Water Pump Impeller Bolt	8.5	0.85	73 in-lb	
Clutch Hub Bolt (KX60, KDX80)	64	6.5	47	
Clutch Hub Nut (KX80)	78	8.0	58	
Clutch Spring Bolts	9.5	0.95	82 in-lb	
Return Spring Pin (KX80)	20	2.0	14.5	L
Primary Gear Nut (KX60, KDX80)	49	5.0	36	
Kick Guide Mounting Screws	---	---	---	L
<b>Engine Removal/Installation:</b>				
Engine Mounting Nuts	25	2.5	18.0	
Swing Arm Pivot Shaft Nut	69	7.0	51	
<b>Engine Bottom End/Transmission:</b>				
Transmission Oil Drain Plug	20	2.0	14.5	
Primary Gear Nut (KX60, KDX80)	49	5.0	36	
Flywheel Nut	29	3.0	22	

# 1-18 GENERAL INFORMATION

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
<b>Wheels/Tires:</b>				
Front Axle Nut: (KX60, KDX80)	49	5.0	36	
(KX80)	69	7.0	51	
Rear Caliper Mounting Bolts (KX80)	25	2.5	18	
Rear Axle Nut: (KX60, 80)	69	7.0	51	
(KDX80)	59	6.0	43	
Spoke Nipples	Not less than 1.5	Not less than 0.15	Not less than 13 in-lb	
<b>Final Drive:</b>				
Rear Axle Nut: (KX60, 80)	69	7.0	51	
(KDX80)	59	6.0	43	
Rear Sprocket Nuts: (KX60)	21	2.1	15	
(KX80)	29	3.0	22	
Rear Sprocket Bolts: (KDX80)	21	2.1	15	
<b>Brakes:</b>				
Caliper Mounting Bolts (Front, Rear)	25	2.5	18	
Brake Hose Banjo Bolts	25	2.5	18	
Rear Master Cylinder Mounting Bolts	25	2.5	18	
Caliper Bleed Valves (Front, Rear)	8	0.8	69 in-lb	
Brake Pedal Mounting Bolt	---	---	---	L
<b>Suspension:</b>				
Caliper Mounting Bolts (KX80)	25	2.5	18	
Front Fork Top Plugs	23	2.3	16.5	
Front Fork Clamp Nuts (KX60, KDX80)				
Upper:	20	2.0	14.5	
Lower:	25	2.5	18	
(KX80): Upper	17	1.7	12	
Lower	20	2.0	14.5	
Front Fork Cylinder (Allen) Bolts				
KX60, KDX80:	20	2.0	14.5	L
KX80:	29	3.0	22	L
Front Axle Nut: KX60, KDX80	49	5.0	36	
KX80:	69	7.0	51	
Uni-trak Arm Mounting Nut: (KX60)	69	7.0	51	
(KDX80)	59	6.0	43	
Uni-trak Link Nuts: (KX60)	49	5.0	36	
(KDX80)	54	5.5	40	
Rear Shock Absorber Mounting Nuts				
Upper and Lower: (KX60)	49	5.0	36	
(KDX80)	54	5.5	40	
(KX80)	54	5.5	40	

**GENERAL INFORMATION 1-19**

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Tie-Rod Front Mounting Nut	59	6.0	43	
Tie-Rod Rear Mounting Nut	34	3.5	25	
Rocker Arm Pivot Shaft Nut	49	5.0	36	
Swingarm Pivot Shaft Nut	69	7.0	51	
<b>Steering:</b>				
Steering Stem Head Nut				
KX60, KDX80:	34	3.5	25	
KX80:	44	4.5	33	
Steering Stem Locknut	3.9	0.40	35 in-lb	
<b>Electical System:</b>				
Flywheel Nut	29	3.0	22	
Spark Plug	27	2.8	20	

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

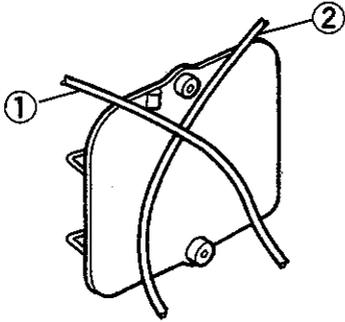
**General Fasteners**

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

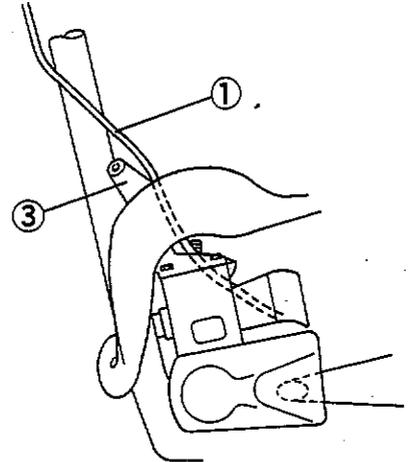
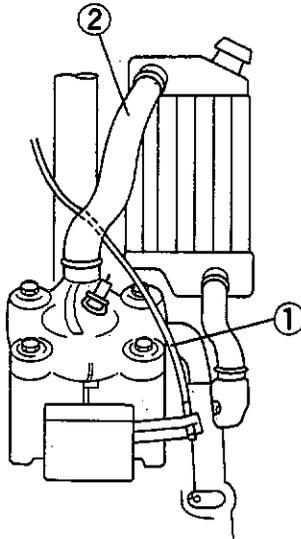
# 1-20 GENERAL INFORMATION

## Cable Routing

KX60

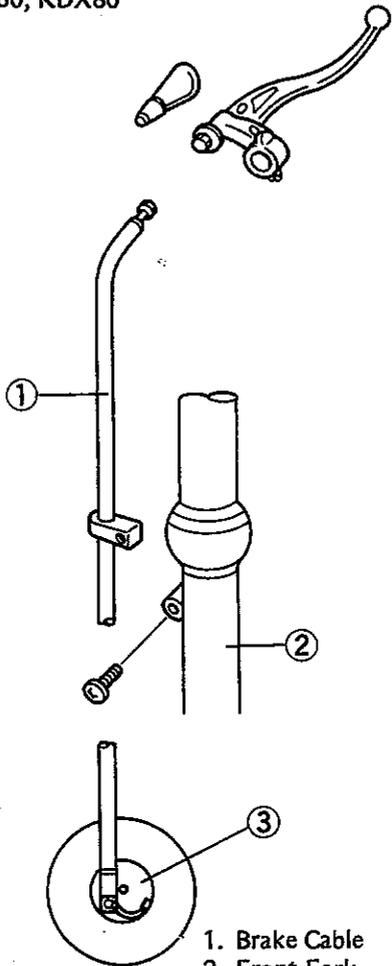


- 1. Clutch Cable
- 2. Throttle Cable



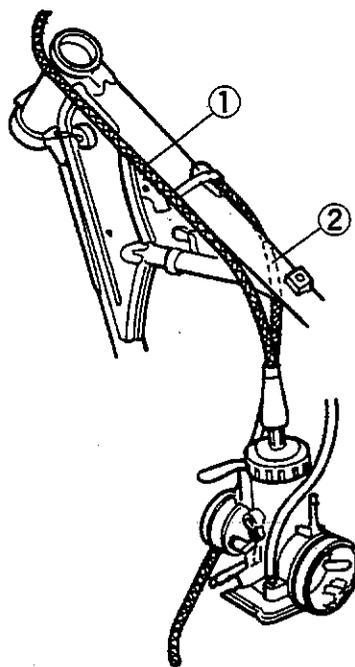
- 1. Clutch Cable
- 2. Cooling Hose
- 3. Muffler Bracket

KX60, KDX80



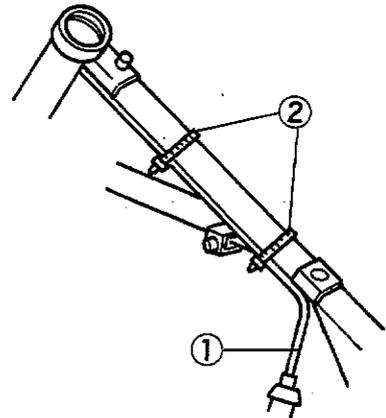
- 1. Brake Cable
- 2. Front Fork
- 3. Front Brake Panel

KX80



- 1. Throttle Cable
- 2. Wiring Harness

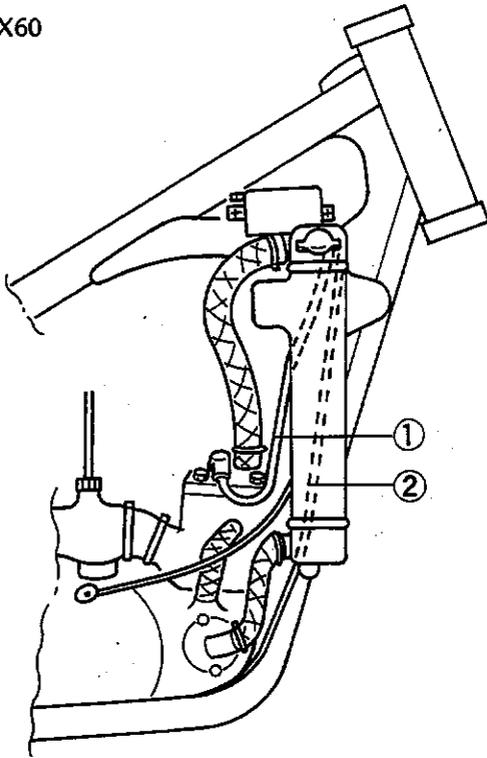
KX60



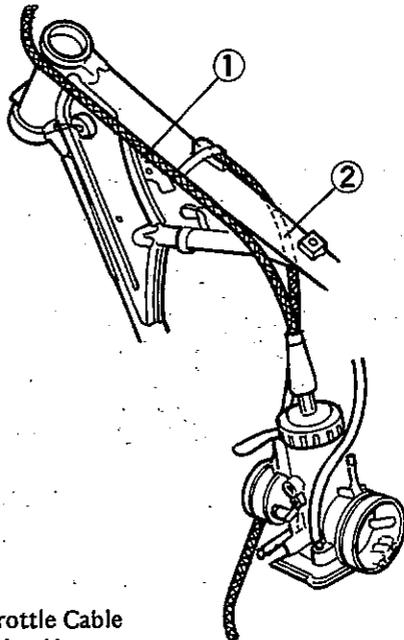
- 1. Throttle Cable
- 2. Clamps

.....  
**Wire Routing**  
.....

KX60

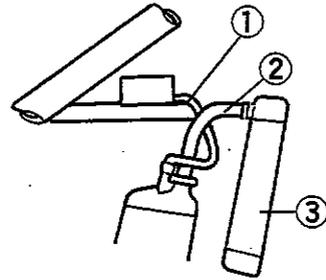


- 1. High Tension Lead
- 2. Radiator Breather Hose



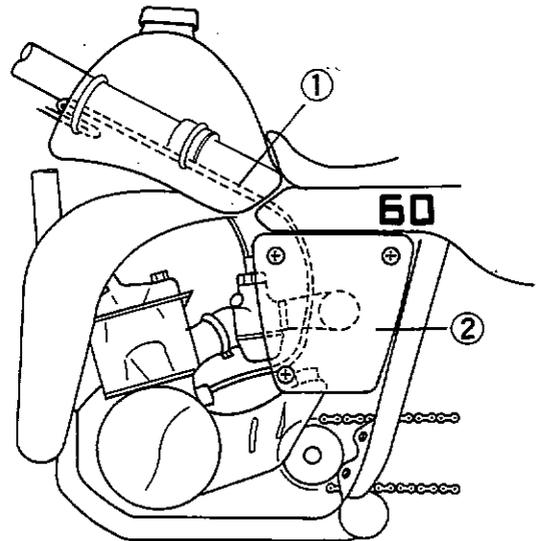
- 1. Throttle Cable
- 2. Wiring Harness

KX80



- 1. High Tension Lead
- 2. Cooling Hose
- 3. Radiator

KX60

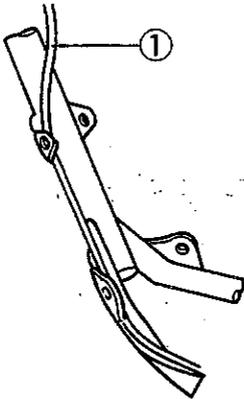


- 1. Wiring Harness
- 2. Air Cleaner Case

# 1-22 GENERAL INFORMATION

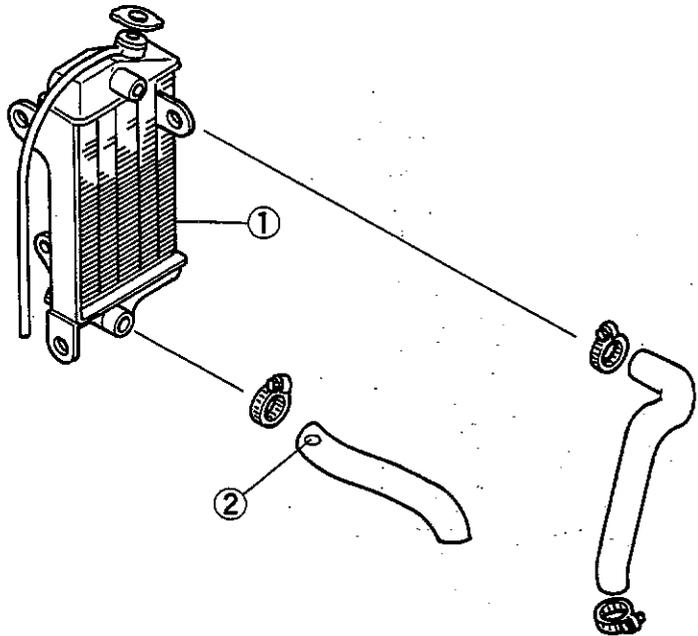
## Hose Routing

KX60



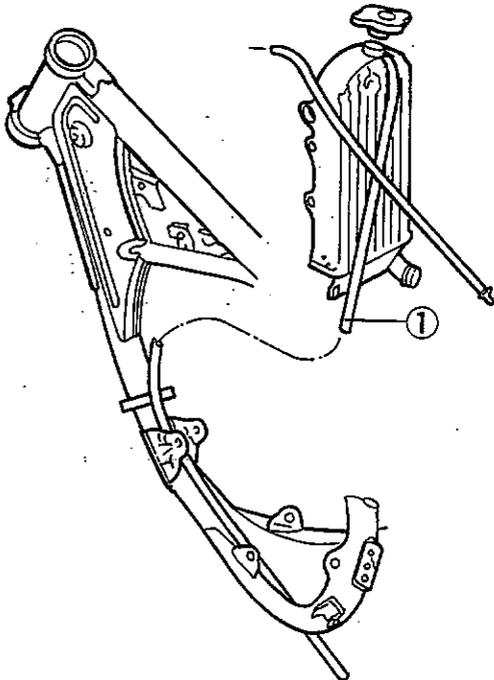
1. Radiator Breather Hose

KX60

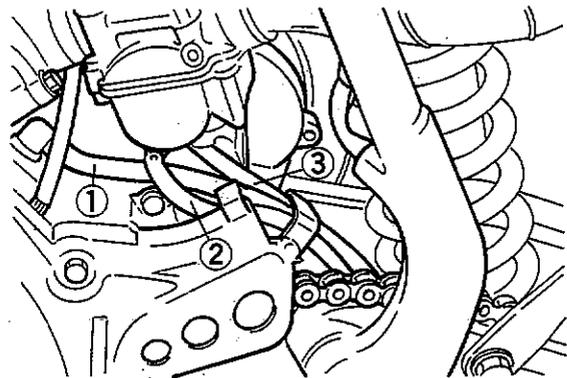


1. Radiator  
2. White Mark

KX80



1. Breather Hose



1. Breather Hose  
2. Overflow Hose  
3. Air Vent Hose

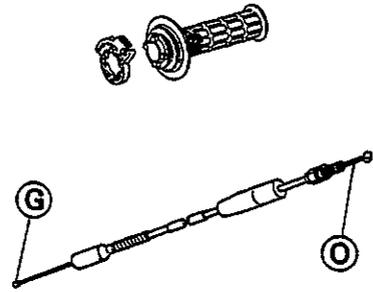
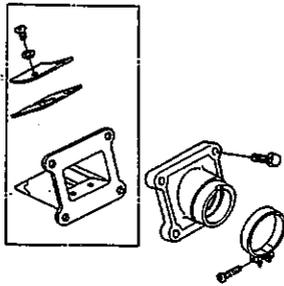
# Fuel System

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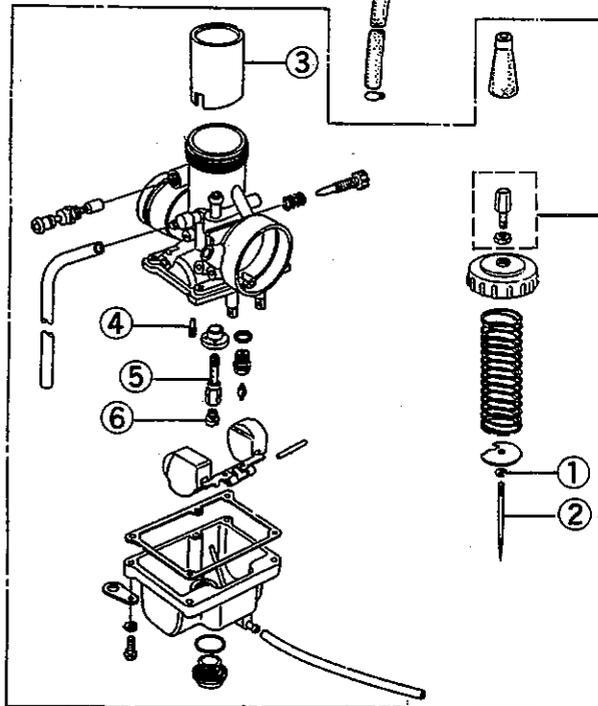
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## 2-2 FUEL SYSTEM

### Exploded View



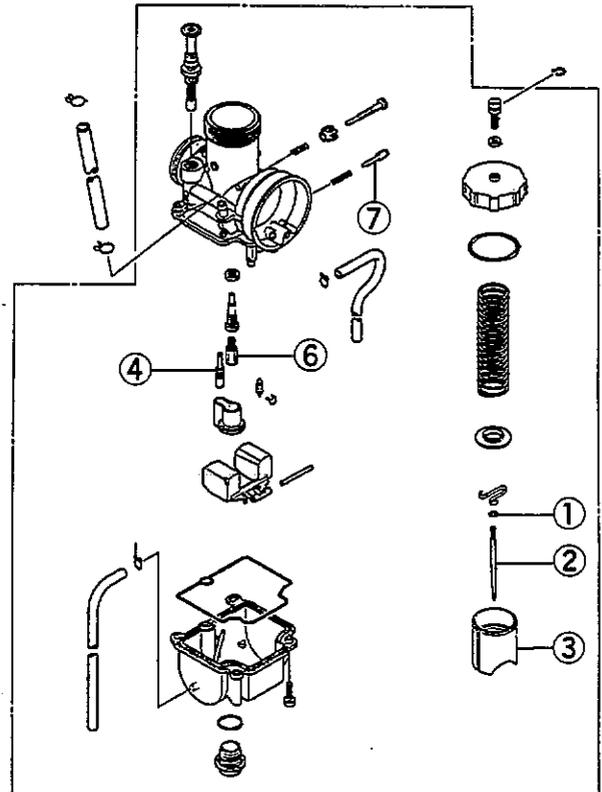
**KX60, KDX80:**



**KDX80:**

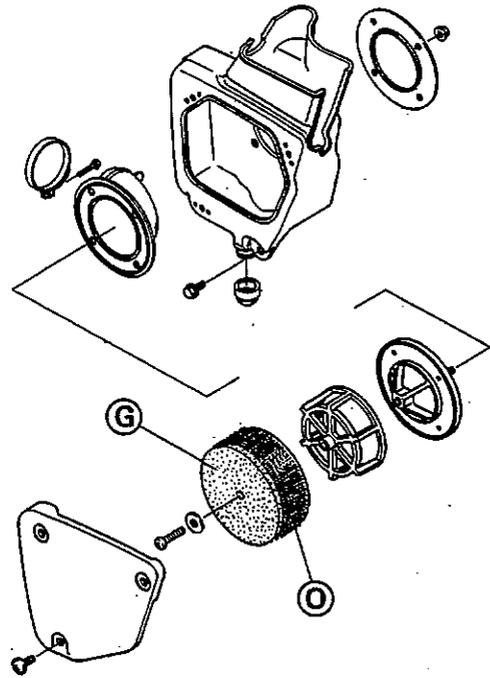
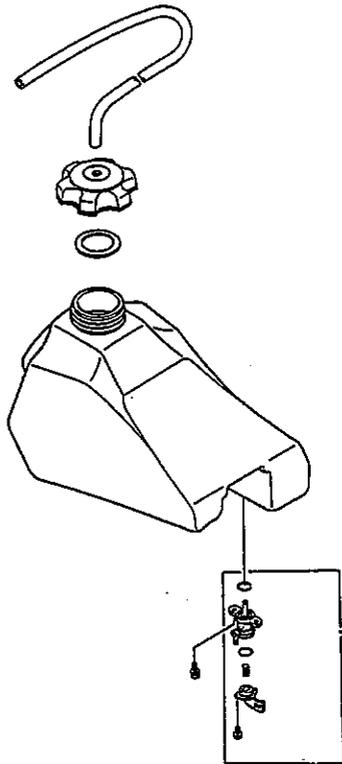


**KX80:**

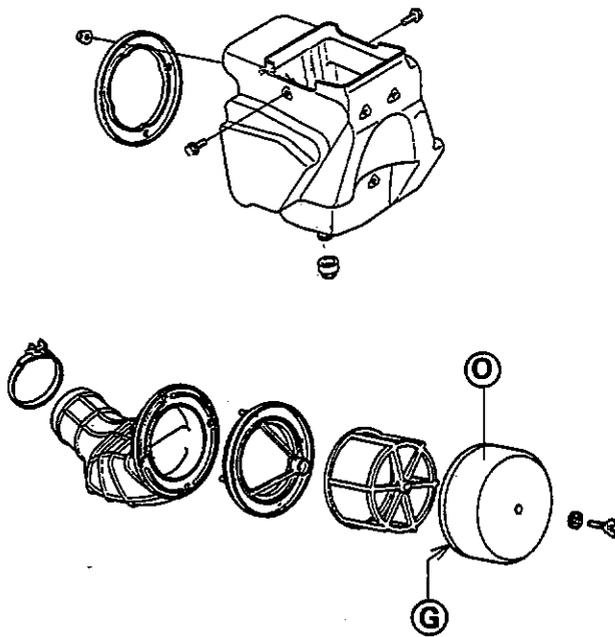


- 1. Jet Needle Clip
- 2. Jet Needle
- 3. Throttle Valve
- 4. Pilot Jet or Slow Jet
- 5. Needle Jet
- 6. Main Jet
- 7. Air Screw
- O : Oil
- G : Grease

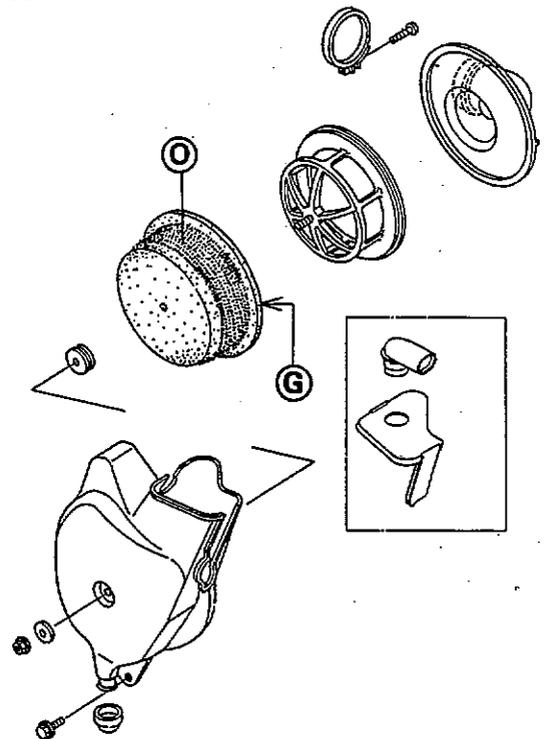
KX60:



KX80:



KDX80:



**O** : Apply a 2-stroke racing oil or high quality foam-air filter oil.  
**G** : Apply a grease.

## 2-4 FUEL SYSTEM

### Specifications

#### KX60:

Item	Standard	Service Limit
<b>Throttle Grip Free Play</b>	2 - 3 mm	---
<b>Carburetor Specifications:</b>		
Make/type	Mikuni VM24SS	---
Main jet	200	---
Needle jet	N -8	---
Throttle valve cutaway	2.0	---
Jet needle	5I14 - 3	---
Jet needle clip position	3rd groove from the top	---
Pilot jet	30	---
Service fuel level	1.5 ± 1 mm	---
Bore Center	26 mm	---
Float height	21.1 ± 2 mm	---
<b>Air Cleaner Element Oil:</b>	2-stroke racing oil or high-quality foam-air filter oil	---
<b>Reed Valve:</b>		
Reed warp	---	0.2 mm

#### KX80:

Item	Standard	Service Limit
<b>Throttle Grip Free Play</b>	2 - 3 mm	---
<b>Carburetor Specifications:</b>		
Make/type	Keihin PE28	---
Main jet	155	---
Throttle valve cutaway	5.0	---
Jet needle	F3045F - 2	---
Jet needle clip position	2nd groove from the top	---
Slow jet	58	---
Air screw	2.0 (turns out)	---
Service fuel level (below the bottom edge of the carb. body)	1.0 ± 1 mm	---
Bore Center	28 mm	---
Float height	19.0 ± 2 mm	---
<b>Air Cleaner Element Oil:</b>	2-stroke racing oil or high-quality foam-air filter oil	---
<b>Reed Valve:</b>		
Reed warp	----	0.2 mm

**KDX80:**

Item	Standard	Service Limit
Throttle Grip Free Play	2 – 3 mm	---
<b>Carburetor Specifications:</b> Make/type Needle jet Main jet Throttle valve cutaway Jet needle Jet needle clip position Pilot jet Service fuel level (below the bottom edge of the carb. body) Bore Center Float height	Mikuni VM26SS 0 – 6 190 2.0 5I14-2 2nd groove from the top 30 1.5 ± 1 mm 26 mm 21.1 ± 2 mm	--- --- --- --- --- --- --- --- --- ---
<b>Air Cleaner Element Oil:</b>	2-stroke racing oil or high-quality foam-air filter oil	
<b>Reed Valve:</b> Reed warp	---	0.2 mm

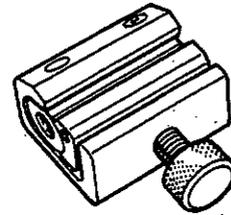
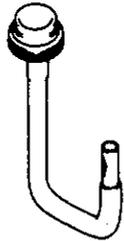
## 2-6 FUEL SYSTEM

### Special Tools

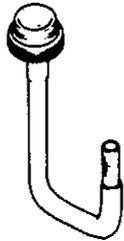
Along with common hand tools, the following more specialized tools are required for complete fuel system servicing.

**Pressure Cable Luber: K56019-021**

**Fuel Level Gauge: 57001-122(KX80)**



**Fuel Level Gauge: 57001-202  
(KX60, KDX80)**



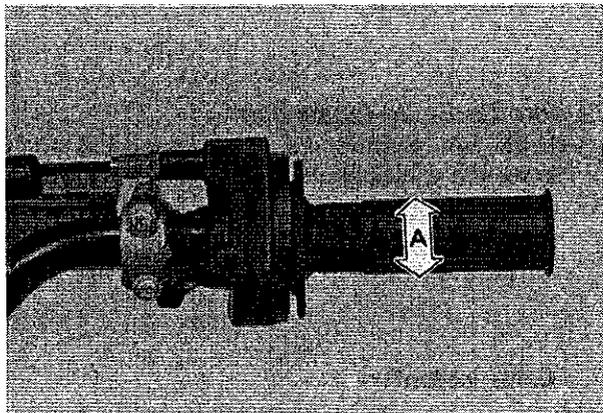
**Throttle Grip and Cable**

If the throttle grip has excessive free play due to cable stretch or misadjustment, there will be a delay in throttle response. Also, the throttle valve may not open fully at full throttle. On the other hand, if the throttle grip has no play, the throttle will be hard to control, and the idle speed will be erratic. Check the throttle grip play periodically in accordance with the Periodic Maintenance Chart, and adjust the play if necessary.

The throttle cable routing is shown in Cable Routing in the General Information chapter.

**Throttle Grip Free Play Inspection**

- Check throttle grip free play by lightly turning the throttle grip back and forth.



A. Throttle Grip Free Play

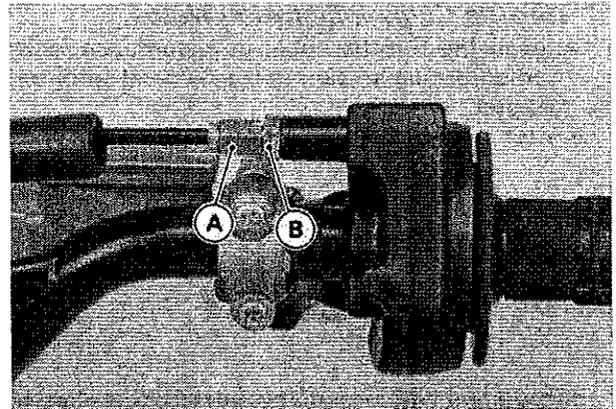
**Throttle Grip Free Play**

2 – 3 mm

- ★ If the throttle grip free play is improper, adjust the throttle cable.

**Throttle Cable Adjustment**

- Loosen the locknut at the upper end of the throttle cable.
- Turn the adjuster until the proper amount of throttle grip free play is obtained.

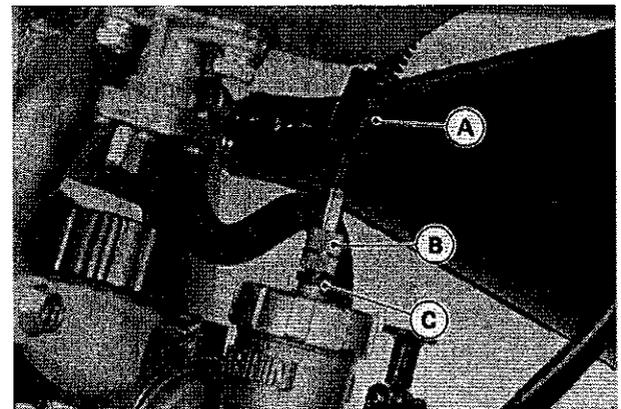


A. Adjuster

B. Locknut

- Tighten the locknut.
- ★ If the throttle grip free play cannot be adjusted with the adjuster at the upper end of the throttle cable use the cable adjuster at the carburetor.

- Pull the boot off of the carburetor top. Make the necessary free play adjustment at the lower cable adjuster, tighten the locknut, and install the boot.



A. Dust Cover

B. Adjuster

C. Locknut

- Turn the handlebar from side to side while idling the engine. If idle speed varies, the throttle cable may be poorly routed or it may be damaged.

**WARNING**

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

## 2-8 FUEL SYSTEM

### Throttle Cable Installation Notes

- Install the throttle cable in accordance with the Cable Routing section in the General Information chapter.
- After the installation, adjust the cable properly.

### WARNING

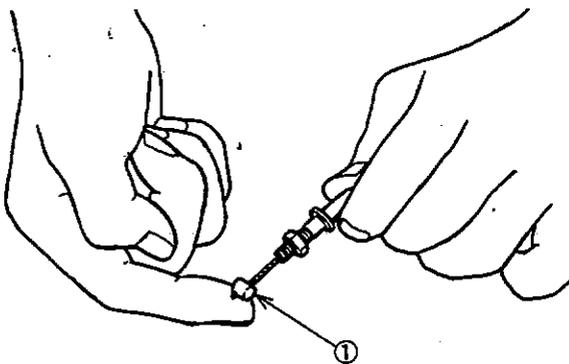
- Operation with an incorrectly routed or improperly adjusted cable could result in an unsafe riding condition.

### Throttle Cable Lubrication

Whenever the cable is removed, and in accordance with the Periodic Maintenance Chart (see General Information chapter), do the following.

- Apply a thin coating of grease to the cable upper end.

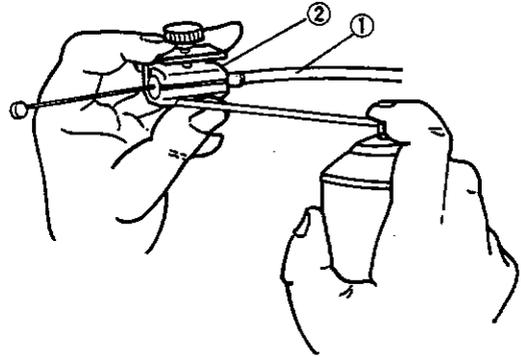
### Cable Lubrication



1. Apply grease.

- Lubricate the cable with penetrating rust inhibitor through the Pressure Cable Luber (special tool).

### Cable Lubrication

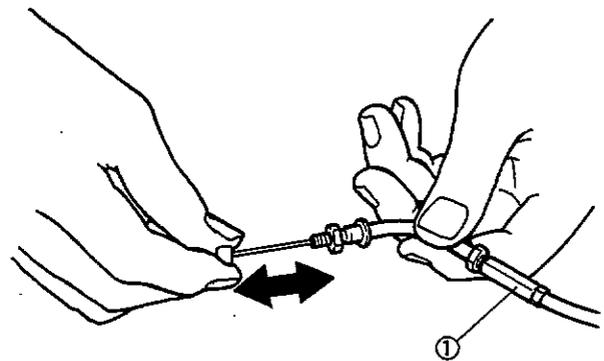


1. Cable
2. Pressure Cable Luber: K56019-021

### Throttle Cable Inspection

- With the throttle cable disconnected at both ends, the cable should move freely within the cable housing.

### Cable Inspection



1. Cable

- ★ If cable movement is not free after lubricating, if the cable is frayed, or if the housing is kinked, replace the cable.

.....  
**Carburetor**  
 .....

Since the carburetor regulates and mixes the fuel and air going to the engine, there are two general types of carburetor trouble: too rich a mixture (too much fuel), and too lean a mixture (too little fuel). Such trouble can be caused by dirt, wear, maladjustment, or improper fuel level in the float chamber. A dirty or damaged air cleaner can also alter the fuel to air ratio.

**Idle Speed Inspection**

- Start the engine and warm it up thoroughly.
- With the engine idling, turn the handlebar to both sides.
- If handlebar movement changes the idle speed, the throttle cable may be improperly adjusted or incorrectly routed, or it may be damaged. Be sure to correct any of these conditions before riding (see Cable Routing in the General Information chapter).

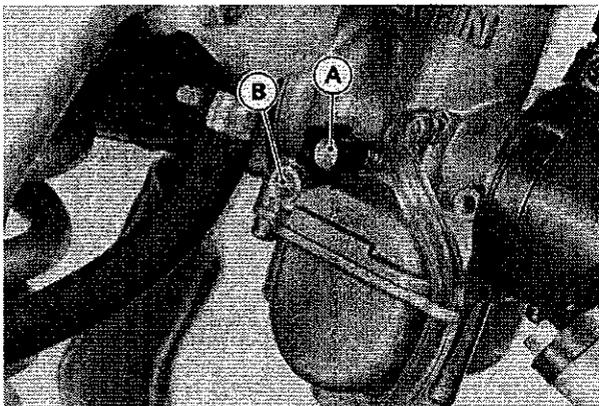
**WARNING**

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

- Check idle speed.
- ★ Adjust it as needed.

**Idle Speed Adjustment**

- Start the engine and warm it up thoroughly.
- For the KX80 model; first turn in the air screw until it seats lightly, and back it out 2 turns.
- Turn the idle adjusting screw to obtain the desired idle speed. If no idle is preferred, turn out the screw until the engine stops.



A. Idle Adjusting Screw  
 B. Air Screw (KX80 only)

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

**Service Fuel Level Inspection**

**WARNING**

◦ Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Turn the fuel tap to the OFF position.
- Remove the fuel tank.
- Remove the carburetor, and hold it in true vertical position on a stand. The fuel hose and carburetor cable do not have to be removed to inspect the fuel level.
- Put the fuel tank on a bench, and connect the fuel tap to the carburetor using a suitable hose.
- Remove the drain plug from the bottom of the float bowl, and screw a fuel level gauge (special tool) into the plug hole.
- Hold the gauge vertically against the side of carburetor body so that the "zero" line is several millimeters higher than the bottom edge of the carburetor body.
- Turn the fuel tap to the ON position to feed fuel to the carburetor.
- Wait until the fuel level in the gauge settles.
- Keeping the gauge vertical, slowly lower the gauge until the "zero" line is even with the bottom edge of the carburetor body.

**NOTE**

◦ Do not lower the "zero" line below the bottom edge of the carburetor body. If the gauge is lowered and then raised again, the fuel level measure shows somewhat higher than the actual fuel level. If the gauge is lowered too far, dump the fuel out of it into a suitable container and start the procedure over again.

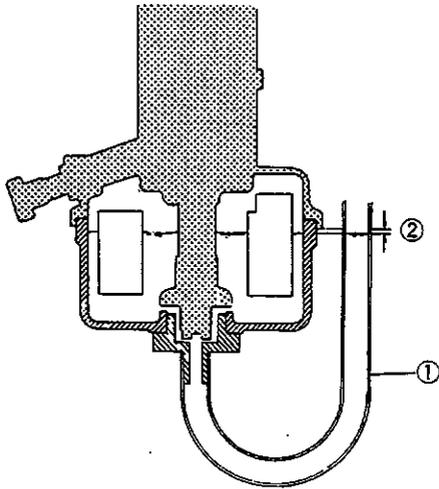
- Read the fuel level in the gauge and compare it to the specification.
- Turn the fuel tap to the OFF position and remove the fuel level gauge.
- ★ If the fuel level is incorrect, adjust it.

## 2-10 FUEL SYSTEM

### Service Fuel Level

(below the bottom edge of the carb. body)

KX60-B	1.5 ± 1 mm
KX80-L/M/N/P:	1.0 ± 1 mm
KDX80-C	1.5 ± 1 mm



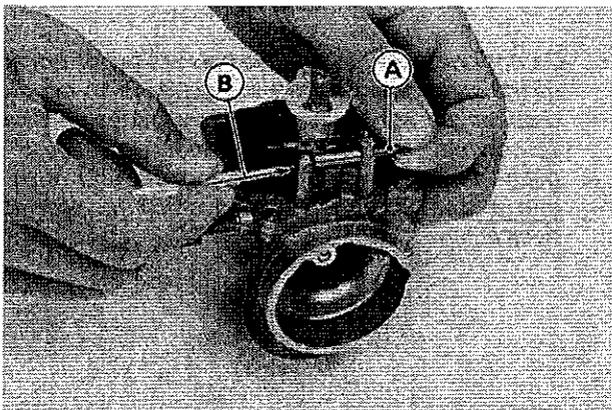
1. Fuel Level Gauge: 57001-202 (KX60, KDX80)  
57001-122 (KX80)
2. Service Fuel Level

### Service Fuel Level Adjustment

#### ⚠ WARNING

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

- Remove the carburetor, and drain the fuel into a suitable container.
- Remove the float bowl.
- Drive out the pivot pin and remove the float.



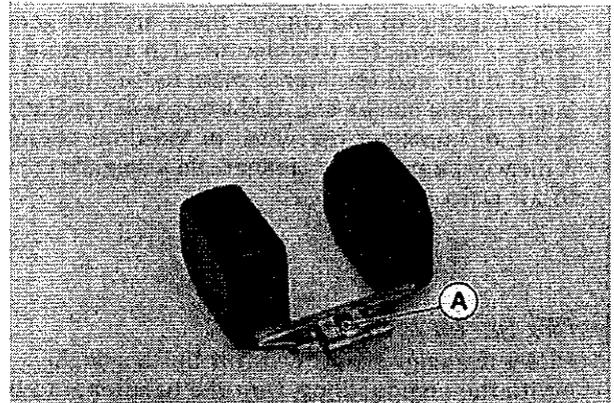
A. Pivot Pin

B. Drive out the pin.

- Bend the tang on the float arm very slightly to change the float height. Increasing the float height lowers the fuel level and decreasing the float height raises the fuel level.

### Float Height

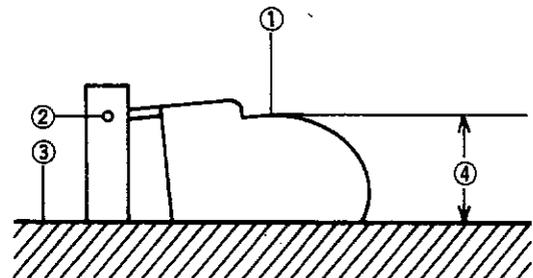
KX60-B:	21.1 ± 2 mm
KX80-L/M/N/P:	19.0 ± 2 mm
KDX80-C:	21.1 ± 2 mm



A. Tang

- Assemble the carburetor, and recheck the fuel level.
- ★ If the fuel level cannot be adjusted by this method, the float or the float valve is damaged.

### Float Height Measurement



1. Float
2. Pivot Pin
3. Float Bowl Mating Surface
4. Float Height

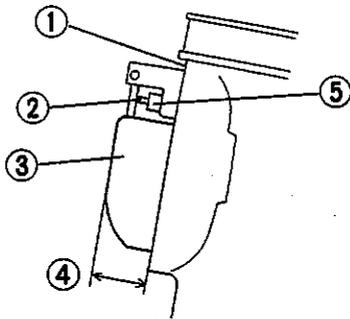
- Place a suitable container beneath the carburetor.

#### NOTE

- Float height is the distance from the float bowl mating surface of the carburetor body (with the gasket removed) to the top of the float. Measure the height with the carburetor upside down.

- For KEIHIN carburetor, measure the float height tilting the carburetor so that the tang on the float just touches the needle rod in the float valve.

**Float Height Measurement (KEIHIN Carburetor)**



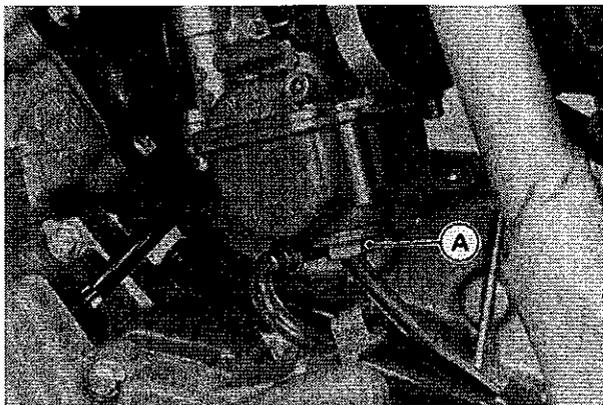
- 1. Float Bowl Mating Surface
- 2. Needle Rod
- 3. Float
- 4. Float Height
- 5. Float Valve

**Fuel System Clean**

**⚠ WARNING**

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

- Place a suitable container beneath the carburetor.
- Turn the fuel tap to the OFF position.
- Remove the drain plug from the bottom of the float bowl and check for water or dirt in the fuel.



A. Drain Plug

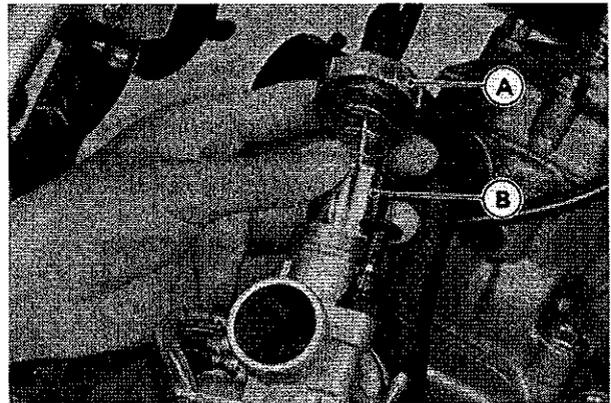
- ★ If any water or dirt comes out, clean the carburetor, fuel tap and fuel tank (see Fuel Tank).
- Install the drain plug securely.

**Carburetor Removal**

**⚠ WARNING**

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

- Turn the fuel tap to the OFF position and pull the fuel hose off the tap.
- Place a suitable container beneath the carburetor.
- Drain the fuel from the float bowl by remove the drain plug.
- Loosen the clamps, and remove the carburetor from the end of the air cleaner duct, and then pull it out of the carburetor holder.
- Unscrew the carburetor cap, and pull out the throttle valve assembly.



A. Carburetor Cap

B. Throttle Valve

**CAUTION**

If the throttle valve is not removed from the cable, wrap it in a clean cloth to avoid damage.

- After removing the carburetor, push a clean, lintfree towel into the carburetor holder and the air cleaner duct to keep dirt or other foreign material from entering.

**⚠ WARNING**

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

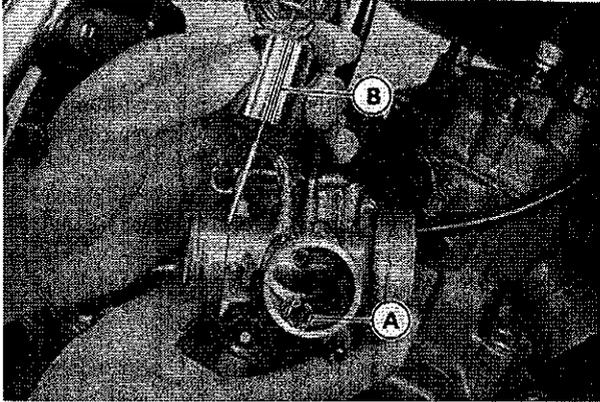
**CAUTION**

If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

## 2-12 FUEL SYSTEM

### Carburetor Installation Notes

- Installation is the reverse of removal.
- Being careful not to bend or otherwise damage the jet needle, align the groove in the throttle valve with the guide pin in the carburetor body. Check to see that the throttle valve goes all the way down into the carburetor body, and slides smoothly.



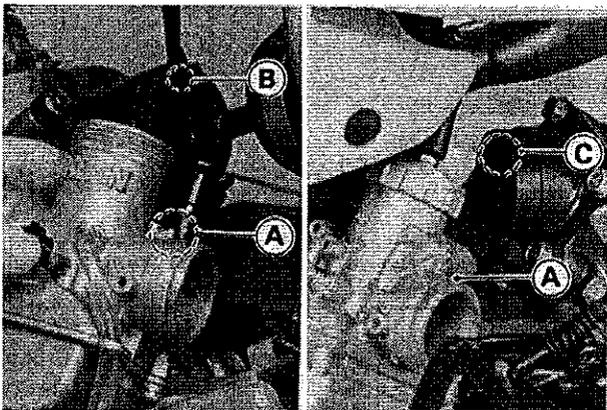
A. Guide

B. Groove

- When installing the carburetor into the carburetor holder, align the center of the carburetor with the positioning mark or groove on the holder.

**KX80:**

**KX60, KDX80:**

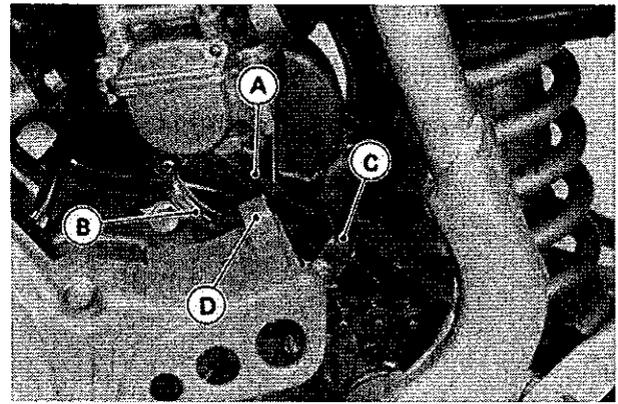


A. Center of the carburetor

B. Positioning Mark

C. Groove

- Route the air vent tube and overflow tube through the clamps on the crankcase and the magneto cover (see Hose Routing in the General Information chapter).



A. Air Vent Tube  
B. Overflow Tube

C. Clamp (Crankcase)  
D. Clamp (Magneto Cover)

### CAUTION

Always keep the tubes free of obstruction, and make sure they do not get pinched by the chain or shock absorber.

- After installing the carburetor, do the following.
  - Turn the fuel tap to the ON position, and check for fuel leakage from the carburetor.

### ▲ WARNING

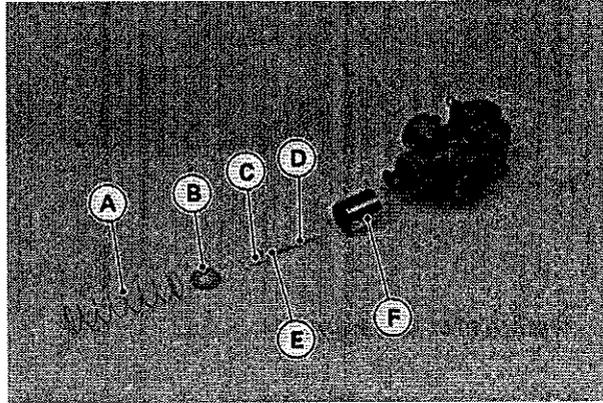
Fuel spilled from the carburetor is hazardous.

- Adjust the following items if necessary
  - Throttle Cable
  - Idle Speed

**Carburetor Disassembly**

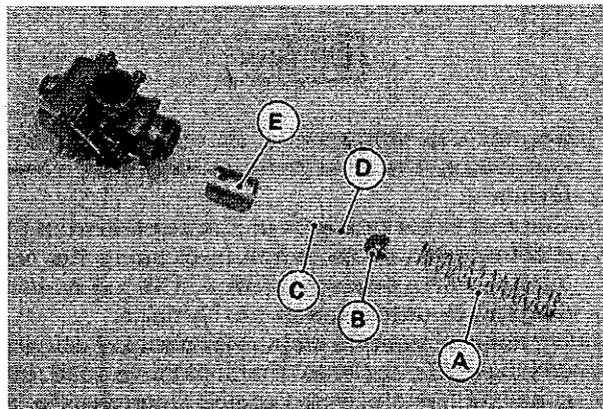
- Remove the carburetor.
- Remove the throttle valve assembly and carburetor cap from the carburetor cable lower end.
- Disassemble the throttle valve assembly; spring, plate, clip (KX80 only), jet needle, circlip and throttle valve.

**KX80:**



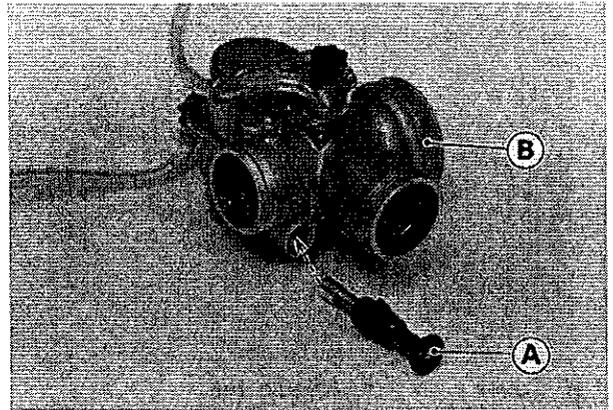
- |           |                   |
|-----------|-------------------|
| A. Spring | D. Jet Needle     |
| B. Plate  | E. Circlip        |
| C. Clip   | F. Throttle Valve |

**KX60, KDX80:**



- |               |                   |
|---------------|-------------------|
| A. Spring     | D. Circlip        |
| B. Plate      | E. Throttle Valve |
| C. Jet Needle |                   |

- Remove the choke knob/starter plunger assembly from the carburetor.

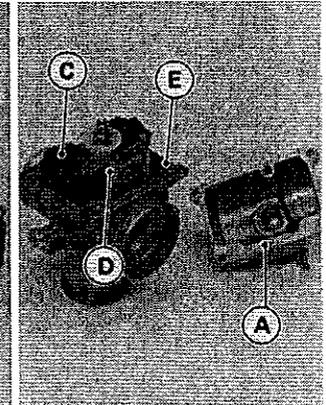
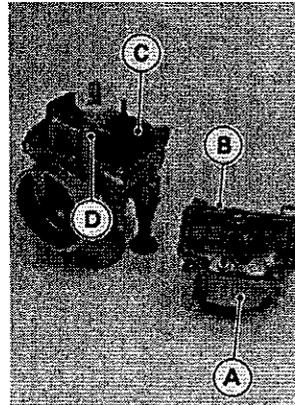


- |   |
|---|
| A. Choke knob/Starter plunger Assembly. |
| B. Carburetor                           |

- Remove the following parts from the carburetor body.

**KX80:**

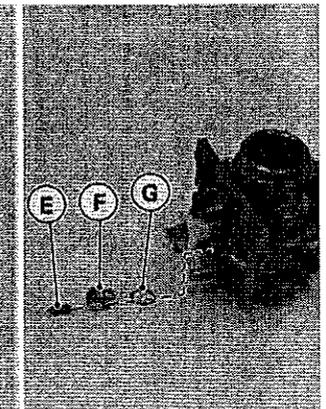
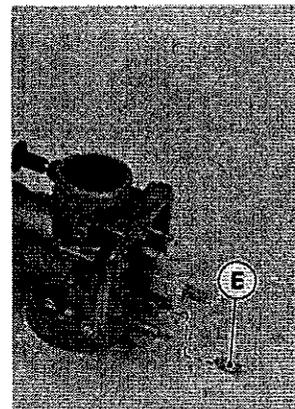
**KX60, KDX80:**



- |               |           |
|---------------|-----------|
| A. Float Bowl | D. Pin    |
| B. O-ring     | E. Gasket |
| C. Float      |           |

**KX80**

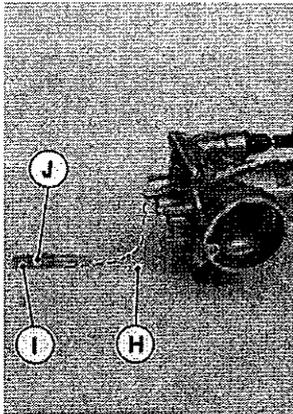
**KX60, KDX80**



- |                |            |
|----------------|------------|
| E. Float Valve | G. Gasket. |
| F. Valve Seat  |            |

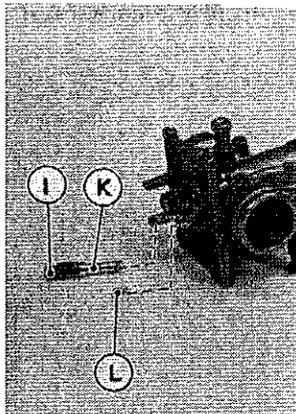
## 2-14 FUEL SYSTEM

### KX80:



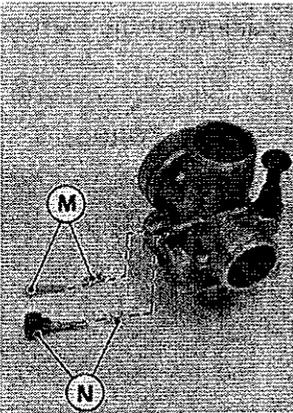
H. Cover  
I. Main Jet  
J. Locknut

### KX60, KDX80:



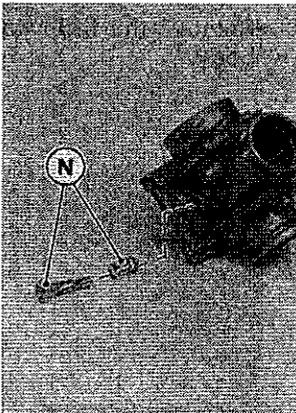
K. Needle Jet  
L. Pilot Jet

### KX80:

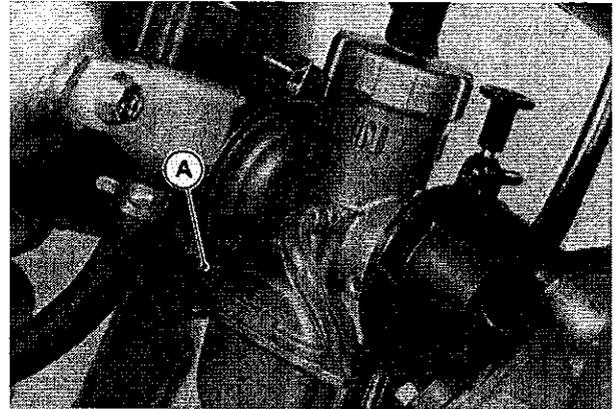


M. Air Screw and Spring (KX80-L/M/N/P only)  
N. Idle Adjusting Screw and Spring

### KX60, KDX80:



- Replace the float bowl O-ring with a new one if it is deteriorated or damaged.
- For the KX80; turn in the air screw fully but not tightly, and then back it out 2 turns.



A. Air Screw

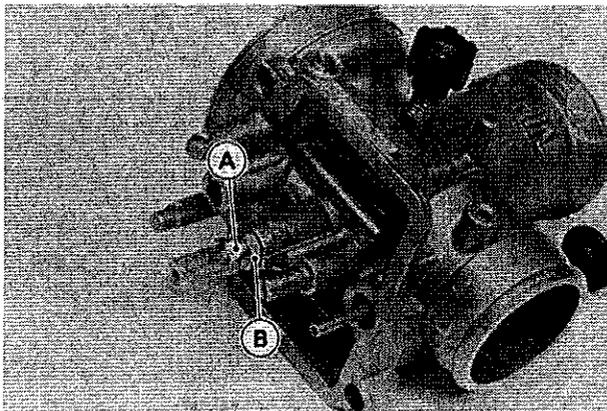
### Carburetor Cleaning

#### WARNING

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

### Carburetor Assembly Notes

- Assembly is the reverse of disassembly.
- Clean the disassembled parts before assembling.
- The needle jet is replaced through the top of the needle jet bore. For the KX80; screw in the needle jet to the needle jet hole, and tighten the locknut securely.



A. Needle Jet

B. Locknut

- Make sure the fuel tap is in the OFF position.
- Drain the fuel in the carburetor.
- Remove the carburetor.
- Disassemble the carburetor.

#### CAUTION

- Do not use compressed air on an assembled carburetor, the float may be deformed by the pressure.
- Remove as many rubber or plastic parts from the carburetor as possible before cleaning the carburetor with a cleaning solution. This will prevent damage or deterioration of the parts.
- Do not use a strong carburetor cleaning solution which could attack the plastic parts; instead, use a mild high flash-point cleaning solution safe for plastic parts.
- Do not use wire or any other hard instrument to clean carburetor parts, especially jets, as they may be damaged.

- Immerse all the metal parts in a carburetor cleaning solution.
- Rinse the parts in water.
- When the parts are clean, dry them with compressed air.
- Blow through the air and fuel passages with compressed air.
- Assemble the carburetor, and install it on the motor-cycle.

- For the KX60/KDX80 model, check the gasket on both sides of the plate at the valve seat for damage.
- ★ If the gaskets are damaged, replace them.
- Remove the pilot jet (KX60, KDX80) or slow jet (KX80).
- Check the pilot jet or slow jet for any damage.
- ★ If the pilot jet or slow jet is damaged, replace it with a new one.
- Remove the throttle valve, jet needle, and needle jet (KX60, KDX80 only).

### Carburetor Inspection

#### WARNING

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

- Remove the carburetor.
- Before disassembling the carburetor, check the fuel level (see Fuel Level Inspection).
- ★ If the fuel level is incorrect, inspect the rest of the carburetor before correcting it.
- Pull the throttle cable to check that the throttle valve moves smoothly and returns by spring pressure.
- ★ If the throttle valve does not move smoothly, replace the carburetor.
- Clean the carburetor.

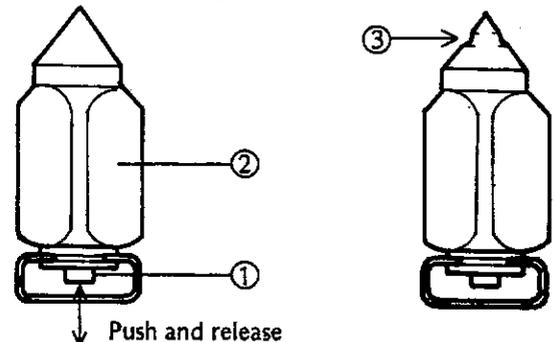
For the KX80 model:

- Remove the float valve needle.
- Check the float valve needle for wear.
- ★ If the needle is worn as shown in figure, replace the valve needle.
- Push the rod in the valve needle, then release it.
- ★ If the rod does not come out fully by spring tension, replace the valve needle.

For the KX60/KDX80 models:

- Remove the float valve needle and valve seat.
- Check the float valve needle and valve seat.
- ★ If the needle is worn as shown in the figure or the seat is worn, replace the valve needle and valve seat as a set.
- Push the rod in the valve needle, then release it.
- ★ If the rod does not come out fully by spring tension, replace the valve needle and valve as a set.

### Float Valve Wear



1. Rod
2. Valve Needle

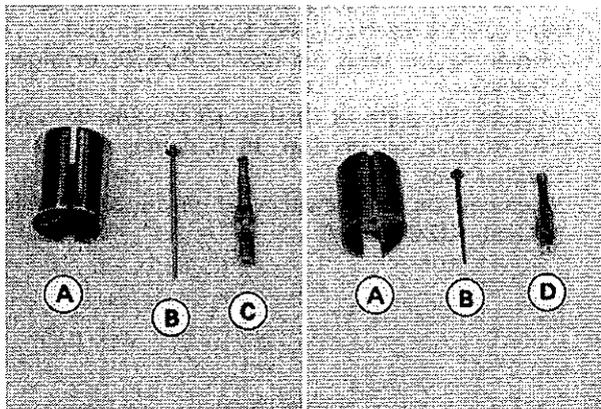
3. Valve Needle Wear

- Inspect the outside of the throttle valve for scratches and abnormal wear.
- ★ If it is badly scratched or worn, replace the throttle valve.
- Inspect the inside of the carburetor body for these same faults.
- ★ If it is badly scratched or worn, replace the entire carburetor.
- Check the jet needle and needle jet for wear.
- ★ A worn needle jet or jet needle should be replaced.

## 2-16 FUEL SYSTEM

KX80:

KX60, KDX80:



A. Throttle Valve  
B. Jet Needle

C. Needle Jet Holder  
D. Needle Jet

- Disassemble the carburetor, and clean the fuel and air passages with a high-flash point solvent and compressed air.

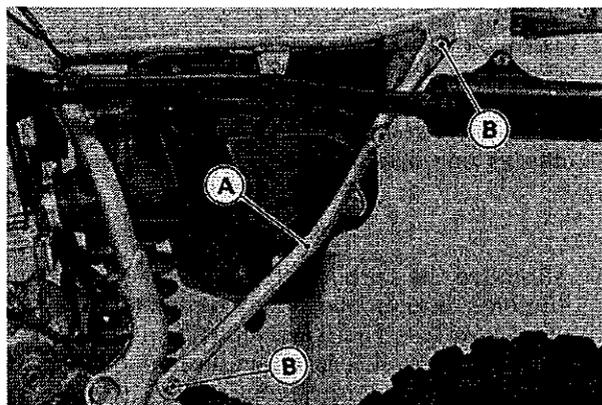
### Air Cleaner

#### *Air Cleaner Housing Removal*

- Loosen the air cleaner duct clamp.
- Remove the following parts.
  - Seat
  - Side Covers
  - Rear Fender
  - Rear Flap
  - Air Cleaner Housing Mounting Bolts
  - Left Rear Frame Pipe (KX80 only)

#### *Air Cleaner Housing Installation Notes*

- Installation is the reverse of removal.
- For the KX80 model, reinstall the left rear frame pipe on the frame. Tighten the bolts to 25N-m (2.5 kg-m, 18ft-lb) of torque.

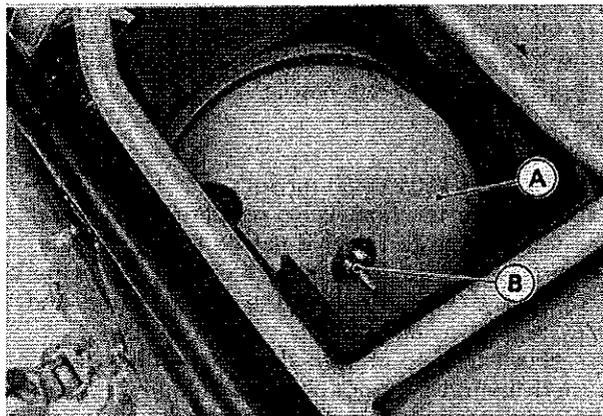


A. Left Rear Frame Pipe  
B. Bolt

#### *Air Cleaner Element Removal*

For the KX80 model:

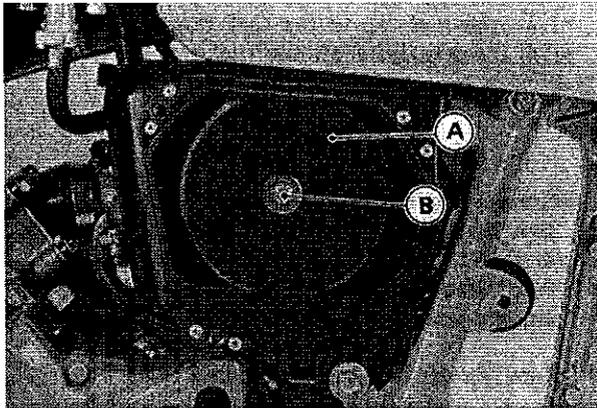
- Remove the seat.
- Remove the wing bolt and pull out the element.



A. Air Cleaner Element  
B. Wing Bolt

For the KX60 model:

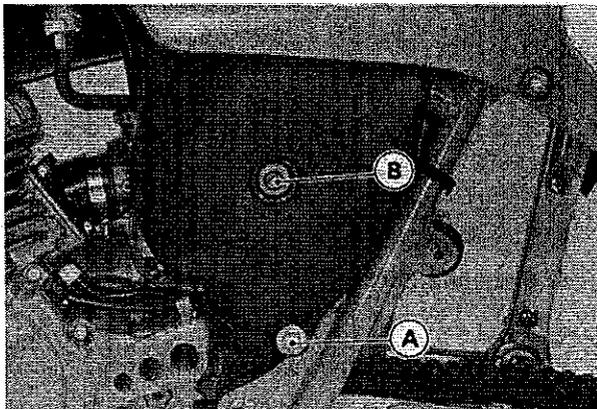
- Remove the air cleaner cover screws, and take off the air cleaner cover.
- Remove the air cleaner mounting screw, and pull out the element.



A. Element      B. Mounting Screw

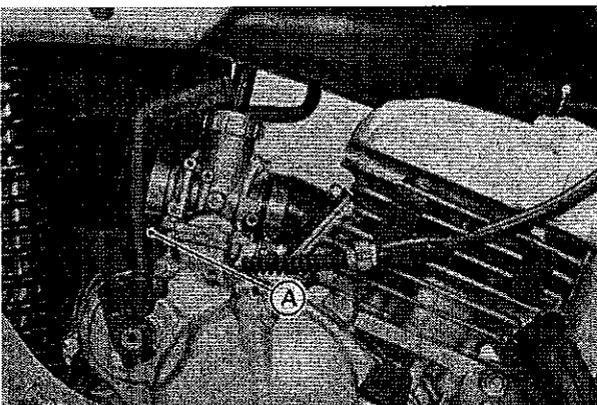
For the KDX80 model:

- Remove the air cleaner mounting bolt.



A. Air Cleaner Mounting Bolt  
B. Air Cleaner Element Mounting Nut

- Loosen the air cleaner duct clamp screw.

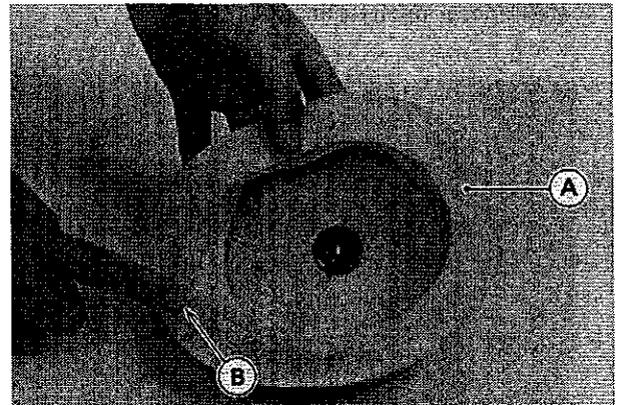


A. Air Cleaner Duct Clamp Screw

- Remove the air cleaner case.
- Remove the air cleaner element mounting nut, and pull out the air cleaner element holder and element.

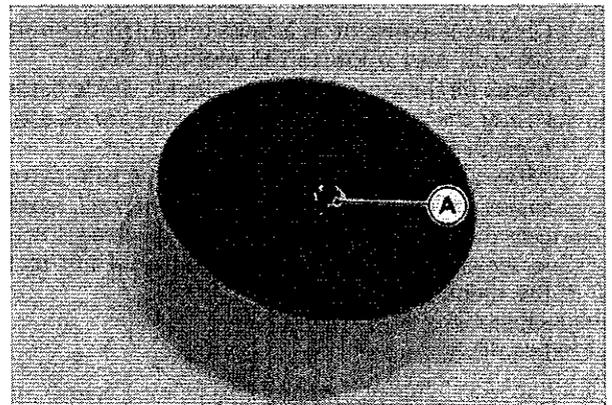
**Air Cleaner Element Installation Notes**

- Installation is the reverse of removal.
- When installing the element, coat the lip of the element with a thick layer of all purpose grease to assure a complete seal against the air cleaner element base. Also, coat the base where the lip of the element fits.



A. Element      B. Grease

- For the KDX80 model; when installing the element, make sure the grommet is in place.



A. Grommet

**Air Cleaner Element Cleaning and Inspection**

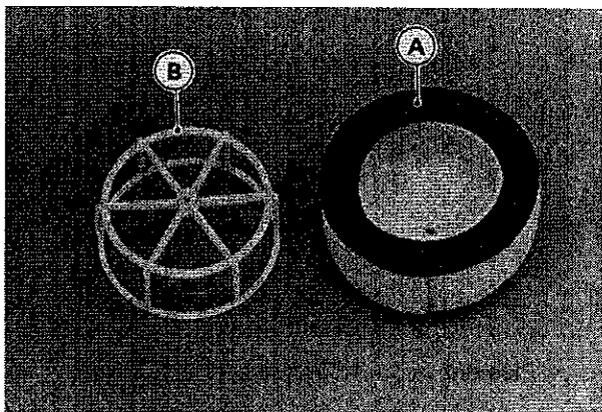
**NOTE**

- In dusty areas, the element should be cleaned more frequently than recommended interval.
- After riding through rain or on muddy roads, the element should be cleaned immediately.
- Since repeated cleaning opens the pores of the element, replace it with a new one in accordance with the Periodic Maintenance Chart. Also, if there is a break in the element material or any other damage to the element, replace the element with a new one.

## 2-18 FUEL SYSTEM

### WARNING

- Clean the element in a well-ventilated area, and take care that there are no sparks or flame anywhere near the working area; this includes any appliance with a pilot light.
- Because of the danger of highly flammable liquids, do not use gasoline or a low flash-point solvent to clean the element.
- Remove the air cleaner element, and separate the element from the element frame.



A. Element

B. Frame

- Clean the element in a both of a high flash-point solvent, and squeeze the element dry.
- Check all the parts of the element for visible damage.
- ★ If any of the parts of the element are damaged, replace them.
- After cleaning, saturate the element with 2-stroke racing oil or high-quality foam-air-filter oil, squeeze out the excess, then wrap it in a clean rag and squeeze it dry as possible. Be careful not to tear the element.
- Assemble the element.
- Install the element.

### Fuel Tank

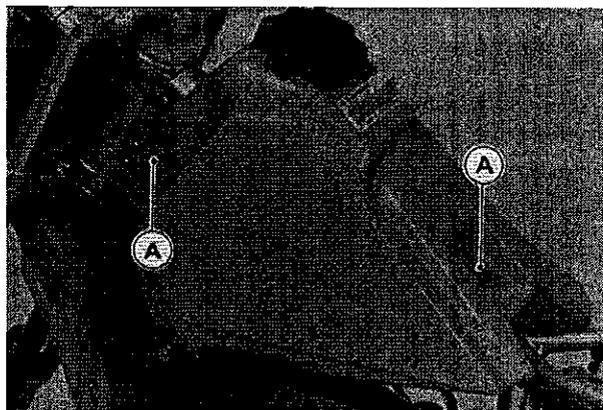
#### Fuel Tank Removal

- Remove the seat.
- Turn the fuel tap to the OFF position.
- Pull the fuel hose off the fuel tap.

### WARNING

- Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Remove the fuel tank mounting bolts.

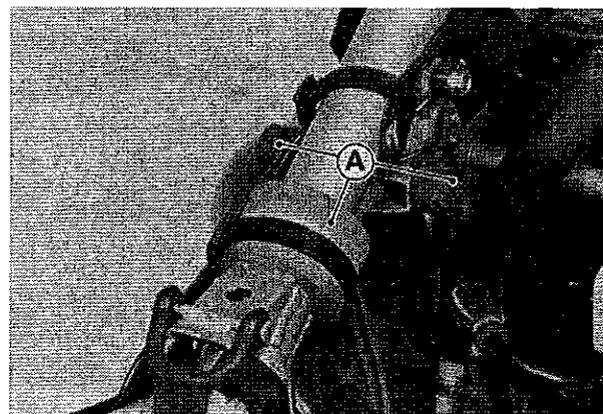


A. Mounting Bolt

- Tilt the tank out the rear of the frame.
- Drain the fuel tank.

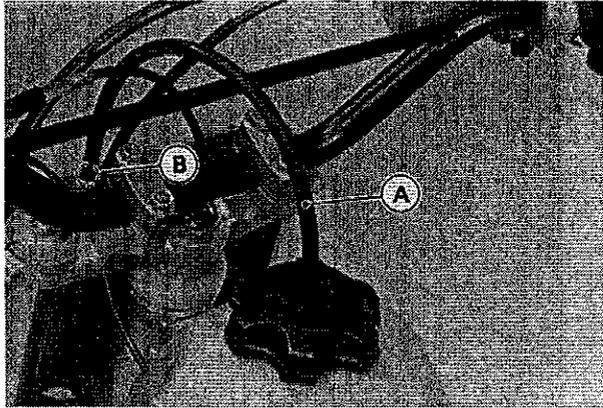
#### Fuel Tank Installation Notes

- Installation is the reverse of removal.
- Check the rubber dampers on the frame top-pipe.



A. Dampers

- ★ If the dampers are damaged or deteriorated, replace them.
- Be sure the fuel hose is clamped to the fuel tap to prevent leaks.
- Insert the fuel tank breather hose outlet end into the number plate hole. (see Hose Routing in the General information chapter).



A. Fuel Tank Breather Hose  
B. Number Plate Hole

**Fuel Tap Removal**

- Remove the fuel tank and drain it.
- Remove the mounting bolts and take out the fuel tap.

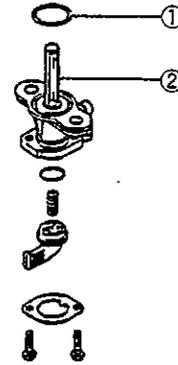
**Fuel Tap Installation Notes**

- Installation is the reverse of removal.
- Be sure the O-ring is in good condition to prevent leaks.
- Be sure to clamp the fuel hose to the tap to prevent leaks.

**Fuel Tap Inspection**

- Remove the fuel tap.
- Check the fuel tap filter screen for any breaks or deterioration.

**Fuel Tap**



1. O-ring                      2. Filter Screen

- ★ If the fuel tap screen has any breaks or is deteriorated, it may allow dirt to reach the carburetor, causing poor running. Replace the fuel tap.
- ★ If the fuel tap leaks, or allows fuel to flow when it is at OFF position, replace the damaged O-ring.

**Fuel Tank Cap Inspection**

- Remove the fuel tank cap.
- Inspect the gasket on the tank cap for visible damage.
- ★ Replace the gasket if it is damaged.
- Remove the breather hose and check to see that the hose is not clogged.
- ★ If it is clogged, blow out the breather hose with compressed air.

**Fuel Tank and Tap Cleaning**

- Remove the fuel tank and drain it.
- Pour some high flash-point solvent into the fuel tank and shake the tank to remove dirt and fuel deposits.

**WARNING**

- Clean the tank in a well-ventilated area, and take care that there is no sparks or flame anywhere near the working area. Because of the danger of highly flammable liquids, do not use gasoline or low flash-point solvent to clean the tank.

## 2-20 FUEL SYSTEM

- Pour the solvent out of the tank.
- Remove the fuel tap from the tank by taking out the bolts.
- Clean the fuel tap filter screen in a high flash-point solvent.
- Pour high flash-point solvent through the tap in all lever positions.
- Dry the tank and tap with compressed air.
- Install the tap in the tank.
- Install the fuel tank

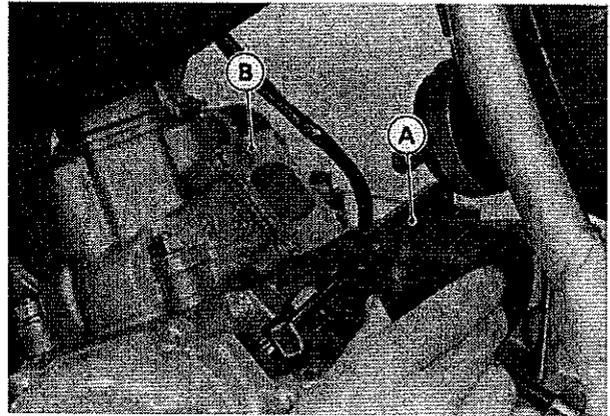
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### Reed Valve

---

#### *Reed Valve Removal*

- Remove the carburetor from the carburetor holder and air cleaner duct.
- Remove the carburetor holder mounting bolts, and move the holder rearward.
- Take the reed valve out of the cylinder.



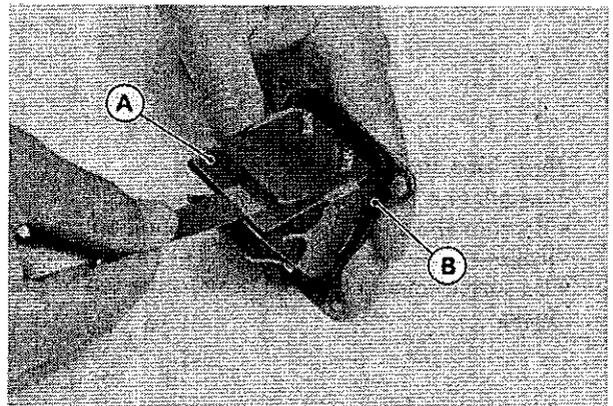
A. Carburetor Holder      B. Reed Valve

#### *Reed Valve Installation*

- Installation is the reverse order of removal (see carburetor Installation Notes).

#### *Reed Valve Inspection*

- Inspect the reeds for cracks, folds, or other visible damage.
- ★ If there is any doubt as to the condition of a reed, replace the reed valve part with a new one.
- ★ If a reed becomes wavy, replace the valve part with a new one even if its warp is less than the service limit.
- Measure the clearance between the reed and holder, and check the reed warp as shown.



A. Reed      B. Reed Valve Holder

- ★ If any one of the clearance measurements exceeds the service limit, replace the valve part with a new one.

#### **Reed Warp**

**Service Limit: 0.2 mm**

# Cooling System

## (KX Model Only)

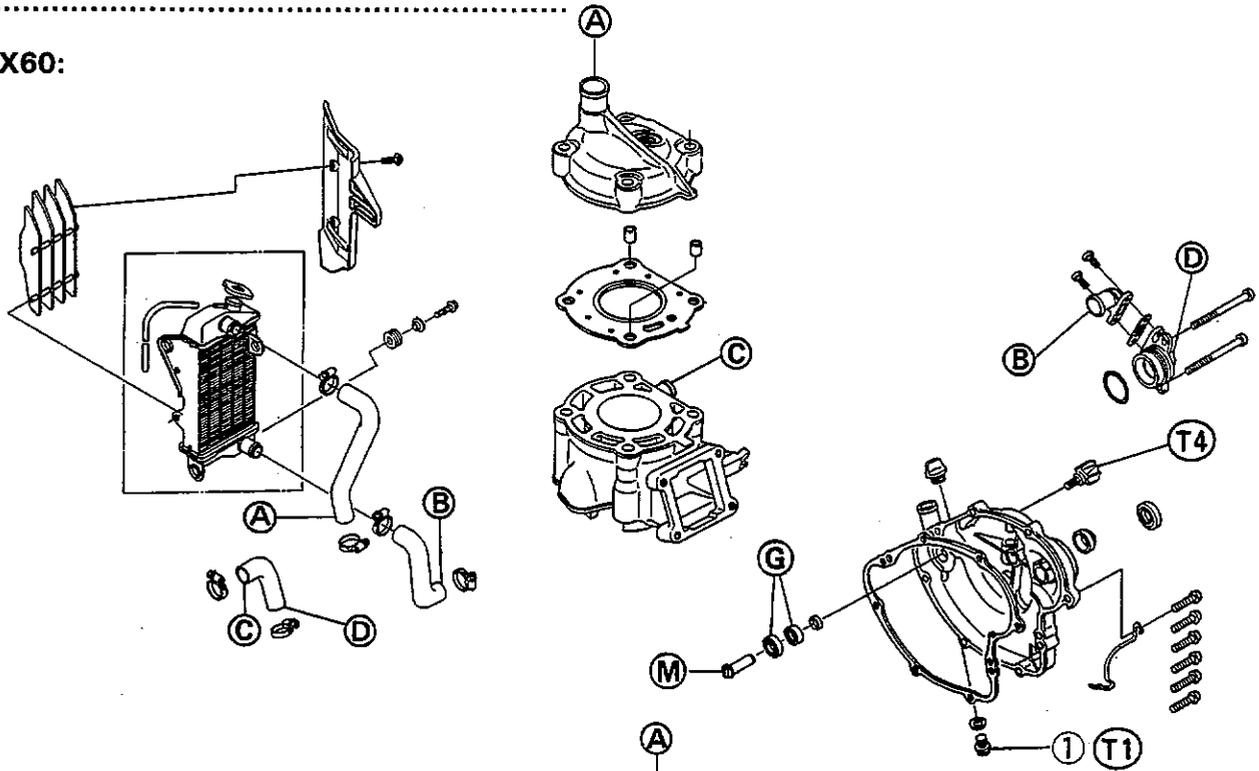
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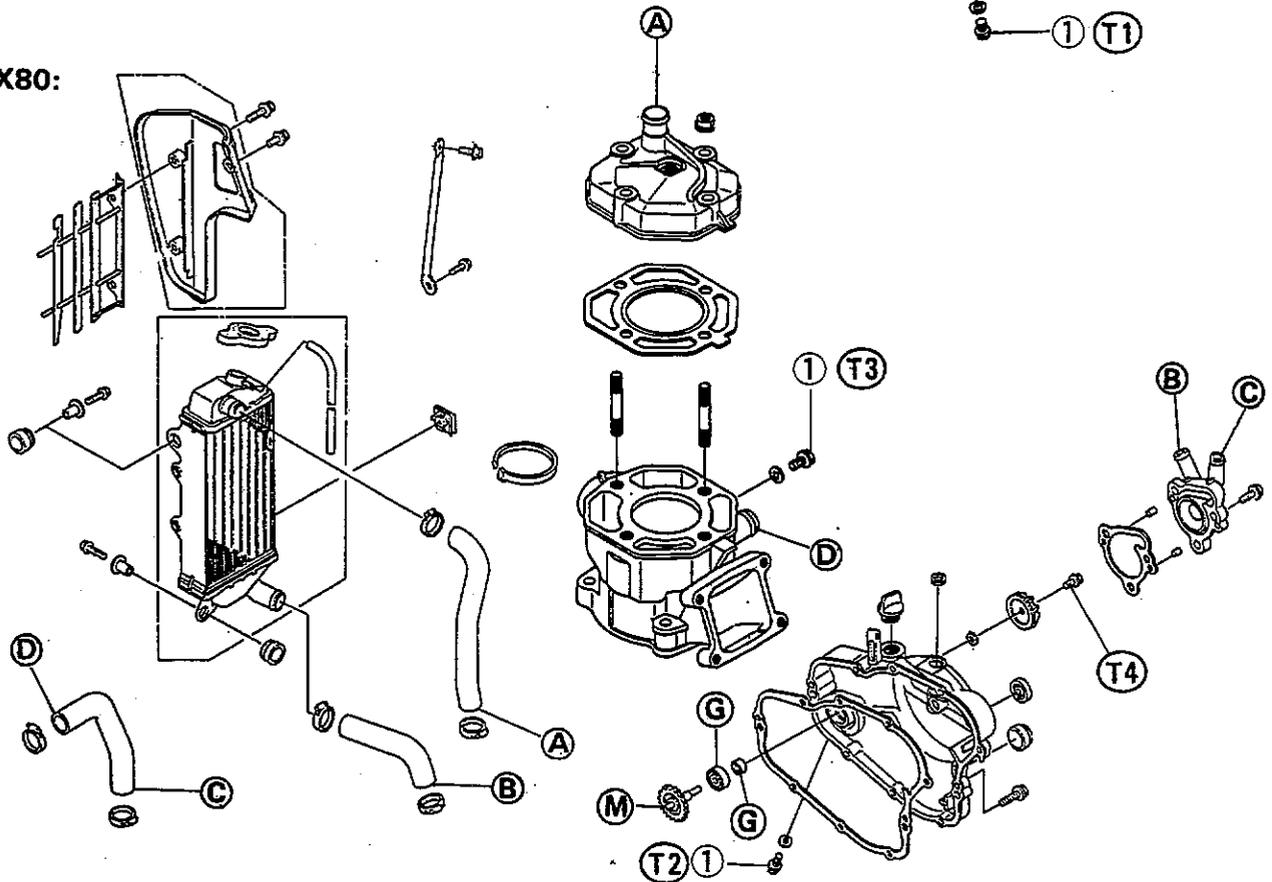
### 3-2 COOLING SYSTEM

#### Exploded View

KX60:



KX80:



1. Drain Plug

- T1: 25 N-m (2.5 kg-m, 18.0 ft-lb)
- T2: 8 N-m (0.8 kg-m, 69 in-lb)
- T3: 9 N-m (0.9 kg-m, 78 in-lb)
- T4: 8.5 N-m (0.85 kg-m, 73 in-lb)
- G : Apply high temperature grease.
- M : Apply molybdenum disulfide grease.

.....  
**Specifications**  
 .....

Item	Standard
<b>Coolant Provided when Shipping:</b> Type Color Mixed ratio Total amount:    KX60 KX80	Permanent type of antifreeze for aluminum engines and radiators Green Soft water 50 %, Coolant 50 % 0.5 L 0.65 L
<b>Radiator:</b> Cap relief pressure	95 – 125 kPa (0.95 – 1.25 kg/cm <sup>2</sup> , 14 – 18 psi)

.....  
**Special Tool**  
 .....

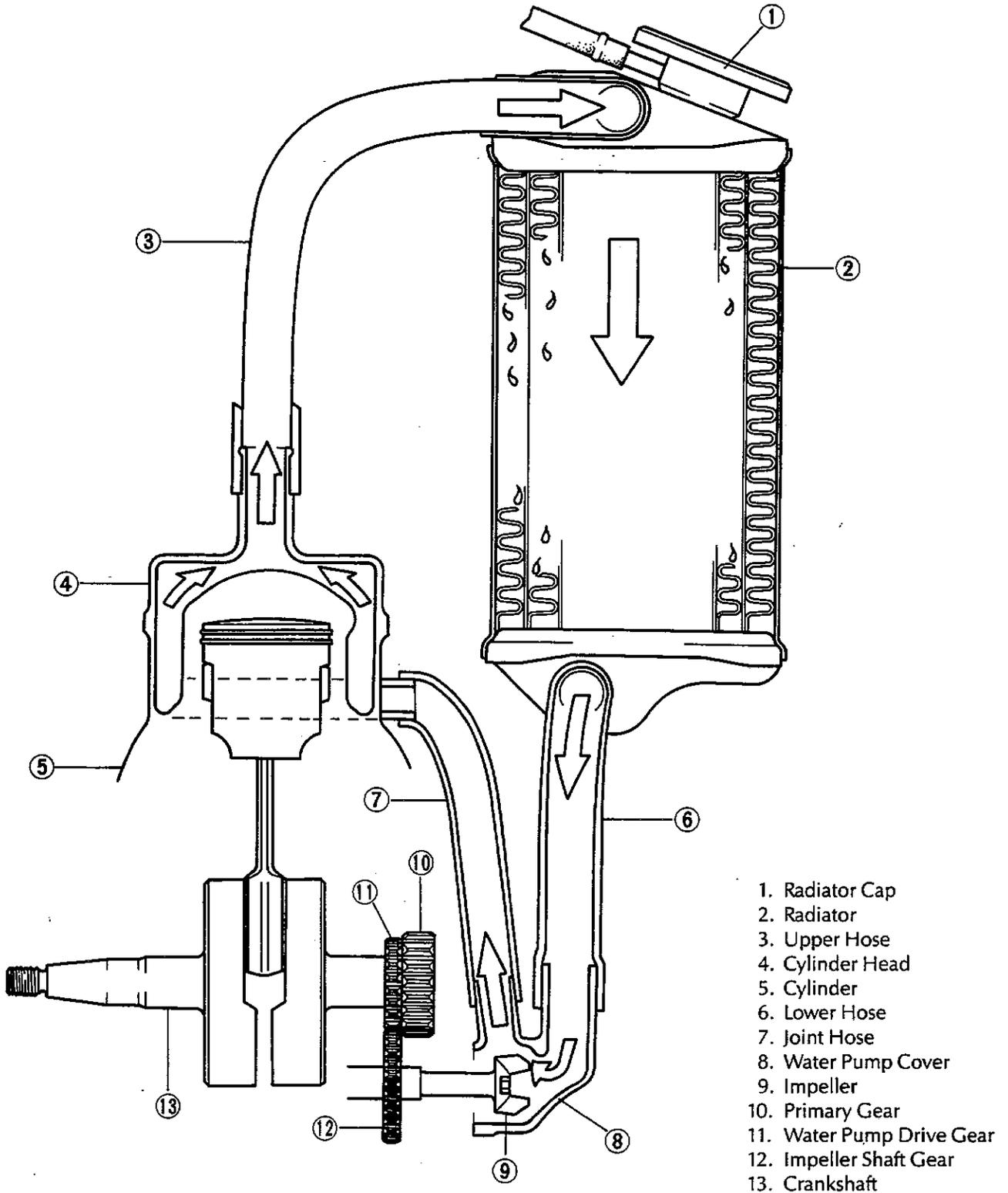
Bearing Driver Set: 57001-1129



### 3-4 COOLING SYSTEM

#### Cooling System

The cooling system is a pressurized forced circulation type. When the engine load varies, this system controls the engine temperature within narrow limits where the engine operates most efficiently. In this way the engine performs stably in various riding conditions, and possesses high durability.



**Coolant**

Check the coolant level each day before riding the motorcycle, and replenish coolant if the level is low. Change the coolant in accordance with the Periodic Maintenance Chart (see the General Information chapter).

**WARNING**

◦To avoid burns, do not remove the radiator cap or try to inspect the coolant level or change the coolant when the engine is still hot. Wait until it cools down.

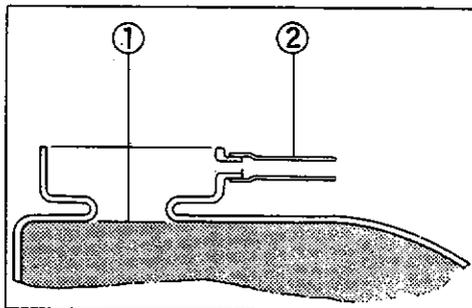
**Coolant Inspection**

**Coolant Level:**

- Situating 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 and turn it further in the same direction and remove the 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).



1. Coolant Level      2. Breather Hose

★If the coolant level is low, add the correct amount of coolant through the filler opening.

**Recommended coolant:**

Permanent type of antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators)

Water and coolant mixture ratio:

1:1 (Water 50%, Coolant 50%)

Total amount:

KX60: 0.5L

KX80: 0.65L

**Coolant Deterioration:**

- Visually inspect the old coolant.
- ★If whitish cotton-like wafts are observed, aluminum parts in the cooling system are corroded. If the coolant is brown, iron or steel parts are rusting. In either case, flush the cooling system.
- ★If the coolant gives off an abnormal smell, check for a cooling system leak. It may be caused by exhaust gas leaking into the cooling system.

**Coolant Change**

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

**Coolant Draining:**

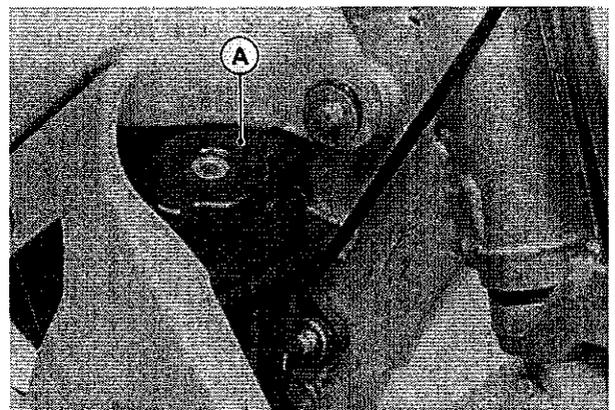
**WARNING**

- 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.

•Remove the radiator cap.

**NOTE**

◦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

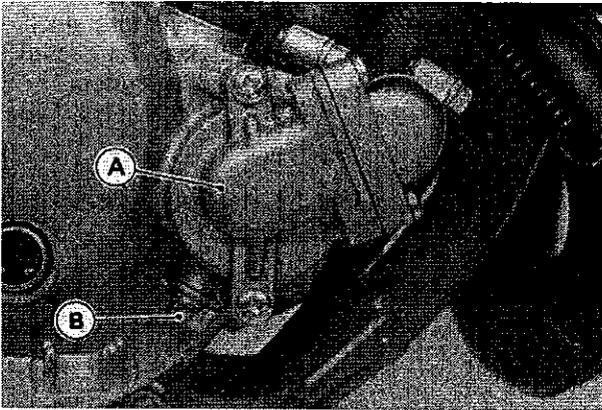
- Place a container under the coolant drain plug.
- Drain the coolant from the radiator and engine by removing the drain plug at the bottom of the water pump.

## 3-6 COOLING SYSTEM

### NOTE

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

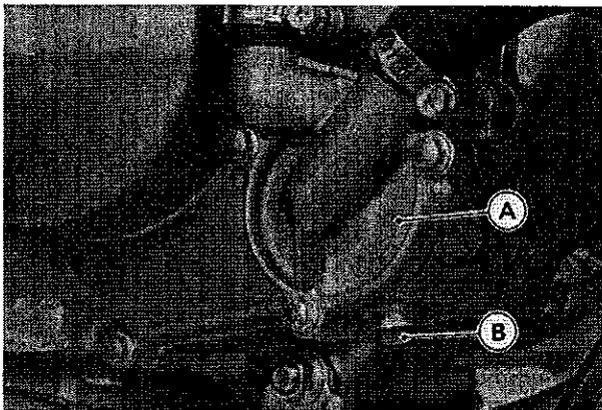
#### KX60:



A. Water Pump

B. Drain Plug

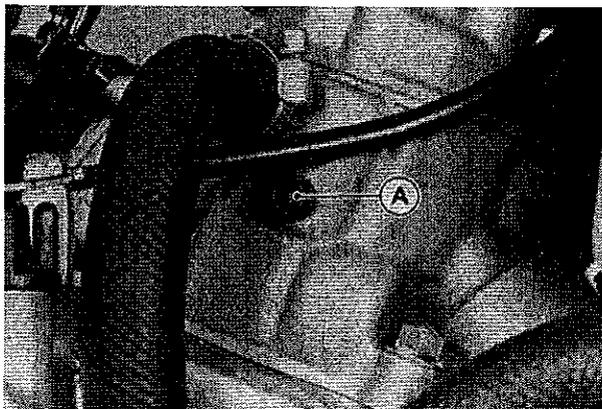
#### KX80:



A. Water Pump

B. Drain Plug

For the KX80 model; place a container under the drain plug on the right side of the cylinder and drain the coolant by removing the drain plug.



A. Cylinder Drain Plug

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

### Coolant Filling:



- Use coolant containing corrosion inhibitors made specifically for aluminum engines and radiators in accordance with the instruction of the manufacturer'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.

#### The coolant provided when shipping

Type	: Permanent type antifreeze for aluminum engines and radiators
Color	: Green
Mixed ratio	: Soft water 50%, coolant 50%
Freezing point	: $-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )
Total amount	: KX60—0.5L KX80—0.65L

- Install the drain plug. Always replace the gasket with a new one, if it is damaged.
- Tighten the drain plug to the specified torque.

#### Tightening Torque:

KX60: Pump Cover—25N-m (2.5kg-m, 18ft-lb)

KX80: Pump Cover —8N-m, (0.8kg-m, 69in-lb)

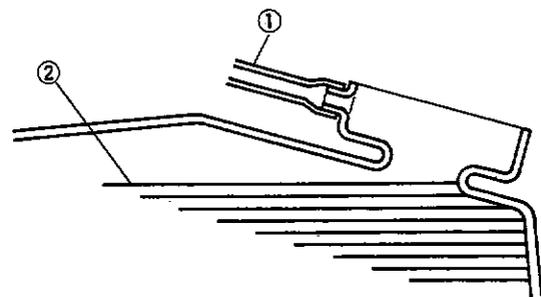
Cylinder —9N-m (0.9kg-m, 78in-lb)

- Fill the radiator up to the bottom of the radiator filler neck with coolant, and install the cap, turning it clockwise about  $\frac{1}{4}$  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

## COOLING SYSTEM 3-7

- Check the cooling system for leaks.
- Install the radiator cap.

### Air Bleeding

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

- Start the engine, warm up the engine thoroughly, and then stop the engine.
- Remove the radiator shroud, and turn the handlebar to the right.
- 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 radiator cover.

### Cooling System Pressure Testing

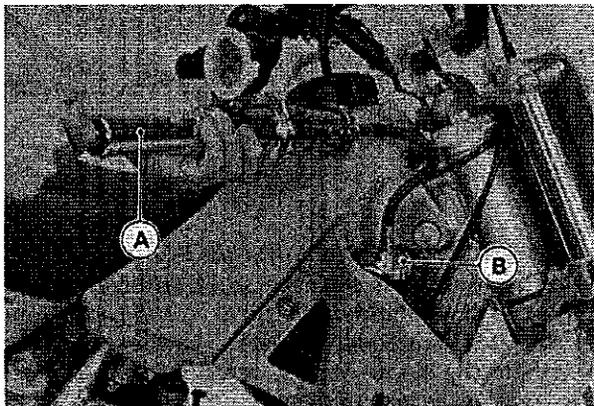
Any time the system slowly loses coolant, inspect for leaks.

#### CAUTION

- During pressure testing, do not exceed the pressure for which the system is designed to work. The maximum pressure is 125 kPa (1.25 kg/cm<sup>2</sup>, 18 psi).
- Remove the radiator shroud, and turn the handlebar to the right.
- Remove the radiator cap, and install a cooling system pressure tester on the radiator filler neck.

#### NOTE

- Wet the adapter cap sealing surfaces with water or coolant to prevent pressure leaks.
- Build up pressure in the system carefully until the pressure reaches 125 kPa (1.25 kg/cm<sup>2</sup>, 18 psi).
- Watch the gauge for at least 6 seconds. If the pressure holds steady, the cooling system is all right.



A. Pressure Tester

B. Adapter

- Remove the pressure tester, replenish the coolant, and install the radiator cap.
- ★ If the pressure drops and no external source is found, check for internal leaks. Check the cylinder head gasket for leaks.

### Cooling System Flushing

Over a period of time, the cooling system accumulates rust, scale, and lime in the water jacket and radiator. When this accumulation is suspected or observed, flush the cooling system. If this accumulation is not removed, it will clog up the water passages and considerably reduce the efficiency of the cooling system.

- Drain the cooling system.
- Fill the cooling system with fresh water mixed with a flushing compound.

#### CAUTION

- Avoid the use of a flushing compound which is harmful to the aluminum engine and radiator. Carefully follow the instructions supplied by the manufacturer of the cleaning product.
- Warm up the engine, and run it at normal operating temperature for about ten minutes.
- Stop the engine, and drain the cooling system after the coolant cools down.
- Fill the system with fresh water.
- Warm up the engine and drain the system after the coolant cools down.
- Repeat the previous two steps once more.
- Fill the system with a permanent type coolant, and bleed the air from the system (see Air Bleeding).

## 3-8 COOLING SYSTEM

### Disassembly and assembly Precautions

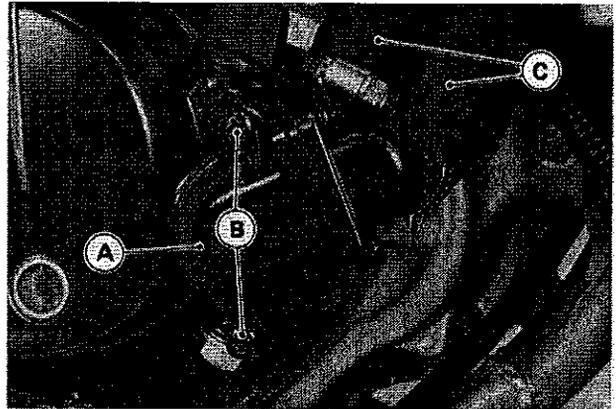
- Prior to disassembly of cooling system parts (radiator, pump, etc), wait until the coolant cools down, and then drain the coolant.
- After assembling and filling the system with coolant, bleed any air from the system.

### Water Pump

#### *Water Pump Cover Removal*

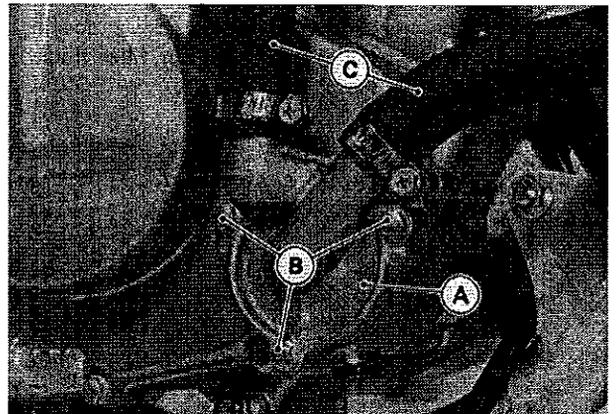
- Drain the coolant (see Coolant Draining).
- Loosen the cooling hose clamps, and disconnect the cooling hoses on the water pump cover.
- Remove the water pump cover screws or bolts, and remove the water pump cover.

#### KX60:



A. Water Pump Cover    B. Screws    C. Hoses

#### KX80:



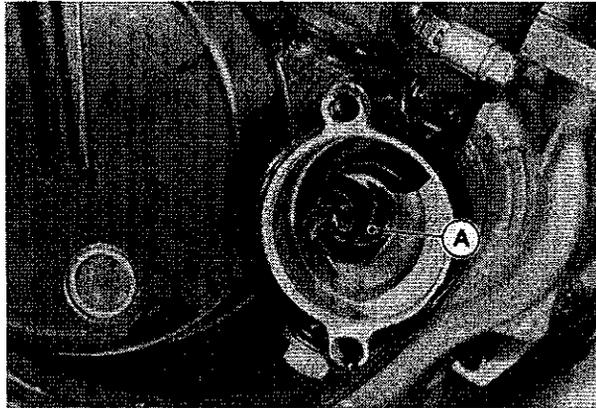
A. Water Pump Cover    B. Bolts    C. Hoses

#### *Water Pump Cover Installation Notes*

- Installation is the reverse of removal.
- For the KX60 model; check for O-ring damage.
- ★ If it is damaged, replace it with a new one.
- For the KX80 model; replace the pump cover gasket with a new one.
- Fill the cooling system (see Coolant Filling).

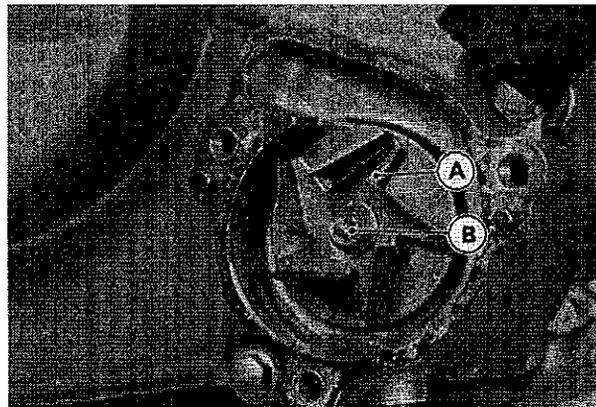
**Impeller Removal**

- Drain the coolant (see Coolant Draining).
- Remove the cover bolts and take out the water pump cover from the right engine cover with the cooling hose(s) attached.
- For the KX60 model; remove the impeller.



A. Impeller

- For the KX80 model; remove the impeller bolt, and pull out the washer, impeller and washer.



A. Impeller      B. Bolt

**Impeller Installation**

- Install the impeller onto the water pump shaft, and tighten the impeller bolt to the specified torque.

**Tightening Torque:**

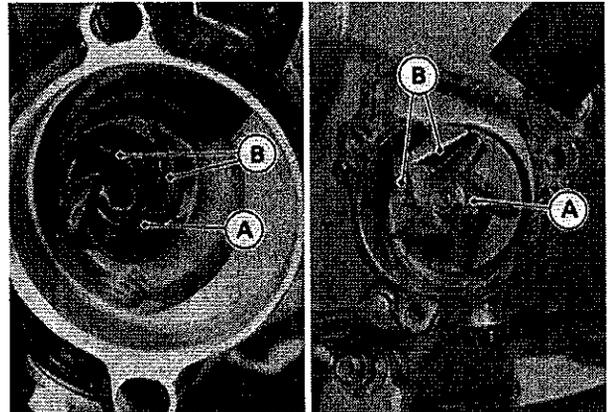
8.5 N-m (0.85 kg-m, 73 in-lb)

**Impeller Inspection**

- Visually check the impeller.
- ★ If the surface is corroded, or if the blades are damaged, replace the impeller.

**KX60:**

**KX80:**



A. Impeller      B. Blades

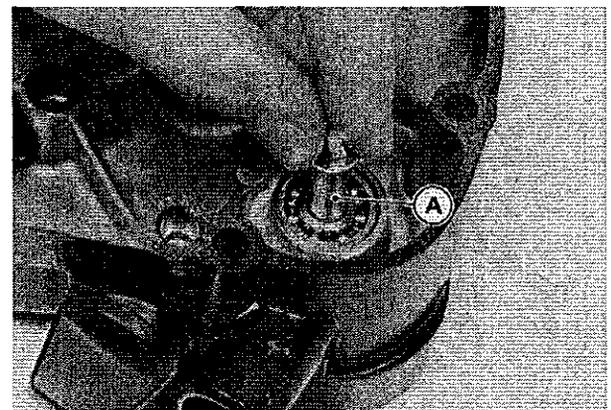
**Water Pump Shaft Removal**

- Remove the following parts.
  - Impeller
  - Right Engine Cover (see Right Engine Cover in the Engine Right Side chapter)
- For the KX60 model; pull out the water pump shaft toward inside of the right engine cover.
- For the KX80 model; remove the primary gear.

**CAUTION**

- Be sure to pull out the shaft toward the inside of the cover to prevent the oil seal lips from peeling.

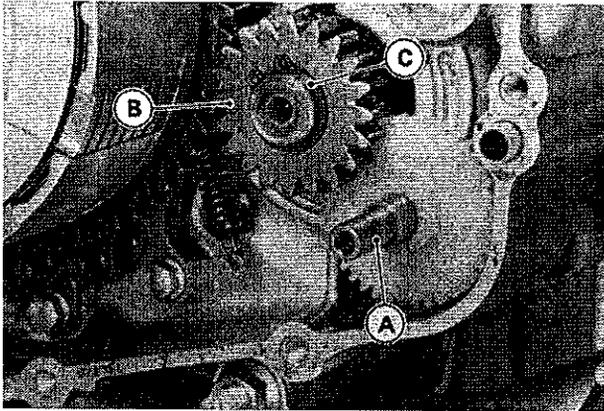
**KX60:**



A. Water Pump Shaft

### 3-10 COOLING SYSTEM

**KX80:**



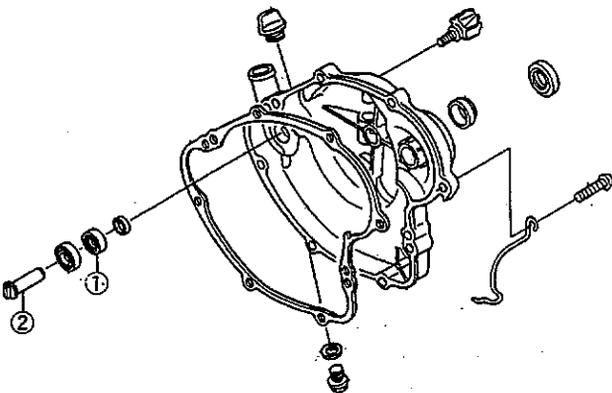
A. Water Pump Shaft      C. Circlip  
B. Primary Gear

#### Water Pump Shaft Installation Notes

- Installation is the reverse of removal.
- To prevent the oil seal lips from peeling, apply a molybdenum disulfide grease to the water pump shaft and insert it into the oil seal from the inside of the right engine cover.

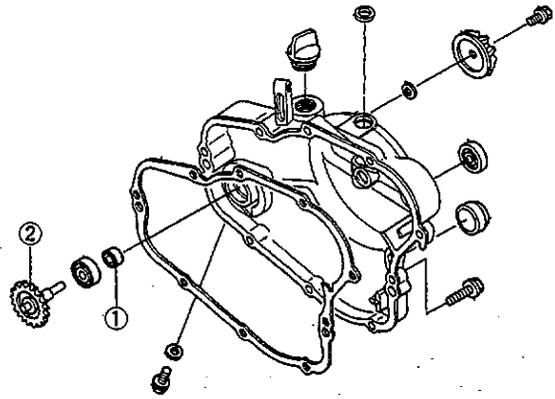
#### Water Pump Shaft Installation

**KX60:**



1. Oil Seal      2. Water Pump Shaft

**KX80:**



1. Oil Seal      2. Water Pump Shaft

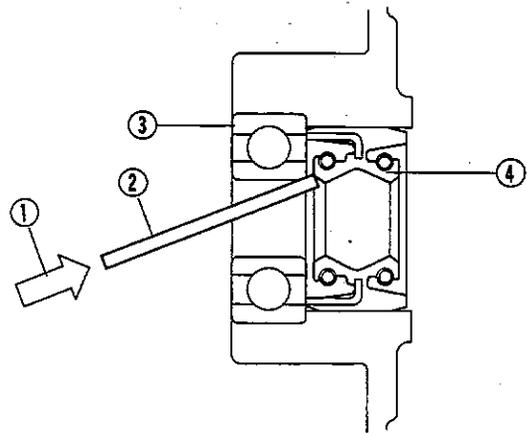
**CAUTION**

- Be sure to apply a molybdenum disulfide grease to the water pump shaft when installing. If it is installed dry, the seals may wear excessively.

#### 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 and the oil seal by tapping evenly around the bearing inner race and seal lips.

#### Oil Seal Removal



1. Tap      3. Ball Bearing  
2. Metal Rod      4. Water Pump Oil Seal

*Oil Seal Installation*

**CAUTION**

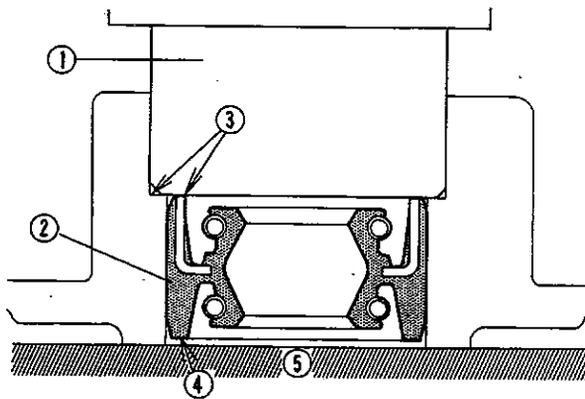
◦If the oil seal or ball bearing is removed, replace all of them with new ones at the same time.

- Apply plenty of high temperature grease to the oil seal lips.
- Press the oil seal into the hole from the inside of the right engine cover with a bearing driver set (special tool) so that the spring side of the seal lips are toward the inside of the cover.

**CAUTION**

◦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 flush with the step for the ball bearing.

**Oil Seal Installation**



1. Bearing Driver Set: 57001-1129
2. Water Pump Oil Seal
3. Flush with the surface.
4. Soft Side (marked side)
5. Impeller Side of Right Engine Cover

•Press the ball bearing into the hole with a bearing driver set (special tool: 57001-1129) until the bearing is bottomed against the step.

**Radiator**

*Radiator Removal*

- Drain the coolant (see Coolant Draining).
- Loosen the hose clamps, and pull off the cooling and breather hoses.
- Remove the mounting bolts, and take out the radiator and radiator cover.

*Radiator Installation*

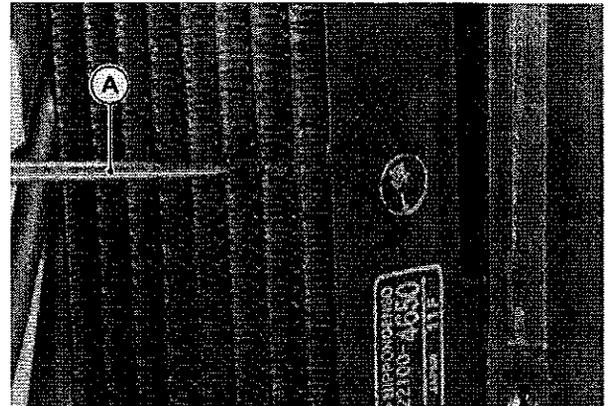
- Installation is the reverse of removal (see Coolant Filling).

*Radiator Inspection*

- Check the radiator core.
- ★ If there are obstructions to air flow, remove them.
- ★ If the corrugated fins are deformed, carefully straighten them with the thin blade of a screwdriver.

**CAUTION**

◦Do not tear the radiator tubes while straightening the fins.



A. Thin Screwdriver

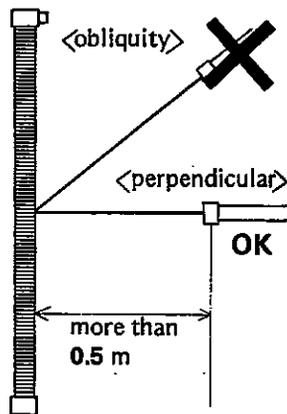
★ If the air passages of the radiator core are blocked more than 20% by unremovable obstructions or irreparably deformed fins, replace the radiator with a new one.

### 3-12 COOLING SYSTEM

#### CAUTION

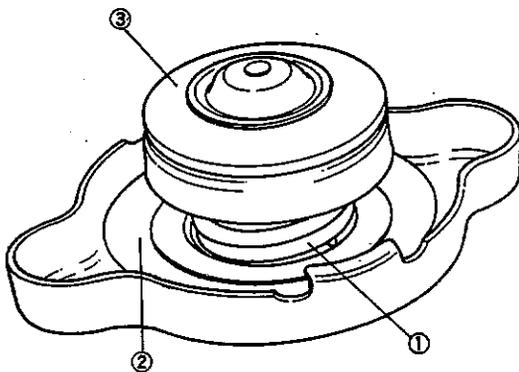
- When cleaning the radiator with compressed air, be careful of the following to avoid damage to the fins.
- Keep the air nozzle over 0.5 m (20 in.) away from the radiator.
- Blow air perpendicularly to the radiator core.
- Never blow air at an angle against the fins but straight through them in the direction of natural air flow.
- Never shake the air nozzle at a right angle against the fins, be sure to move it at a level with the fins.

#### Radiator Cleaning



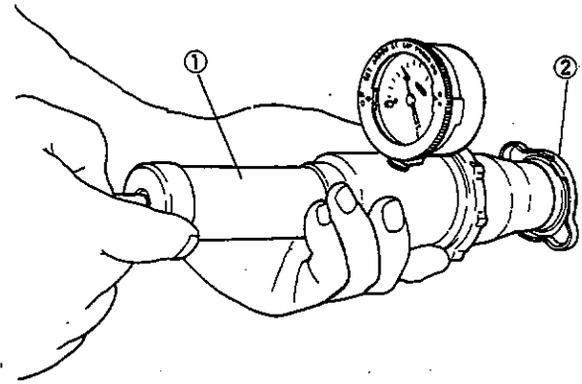
#### Radiator Cap Inspection

- Check the condition of the valve spring, and the top and bottom valve seals of the radiator cap.
- ★ If any one of them shows visible damage, replace the cap.



1. Valve Spring      3. Bottom Valve Seal  
2. Top Valve Seal

- Wet the top and bottom valve seals with water or coolant to prevent pressure leaks.
- Install the cap on a cooling system pressure tester.
- Watching the pressure gauge, pump the tester to build up the test pressure. The cap must open at the specified relief pressure (the gauge hand flicks down).



1. Pressure Tester      2. Radiator Cap

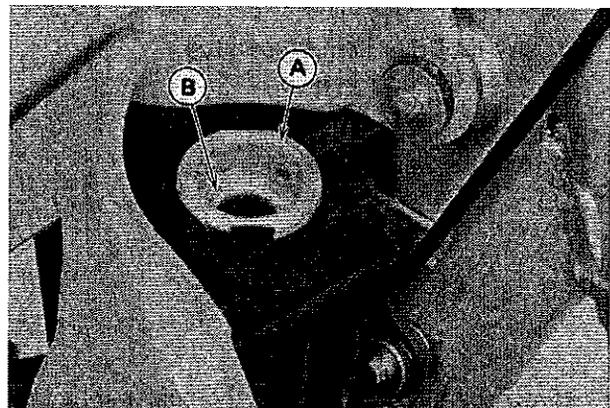
#### Radiator Cap Relief Pressure:

95–125kPa (0.95–1.25 kg/cm<sup>2</sup>, 14–18 psi)

- Also, the cap must hold the relief pressure for at least 6 seconds.
- ★ If the cap cannot hold the pressure, or if the relief pressure is too high or too low, replace the cap with a new one.

#### Filler Neck Inspection

- Check the radiator filler neck for signs of damage.
- Check the condition of the top and bottom sealing seats in the filler neck. They must be smooth and clean for the radiator cap to function properly.



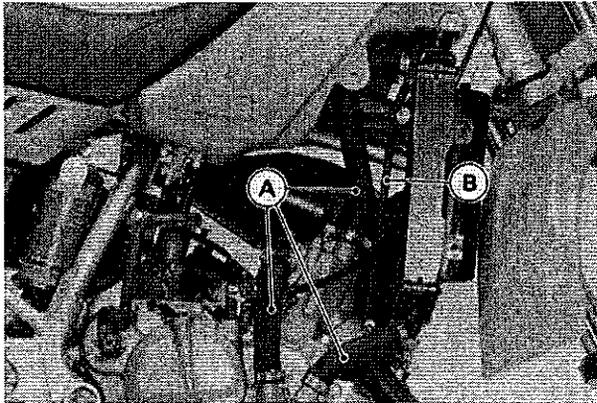
- A. Top Sealing Seat      B. Bottom Sealing Seat

***Cooling Hoses, Breather Hose Inspection***

- In accordance with the Periodic Maintenance Chart, visually inspect the hoses for signs of deterioration. Squeeze the hose. A hose should not be hard and brittle, nor should it be soft or swollen.
- Replace any damaged hose.

***Cooling Hoses, Breather Hose Installation Notes***

- Install the cooling hoses or breather hose being careful to follow the performed bends (see Exploded View, Hose Routing in the General Information chapter). Avoid sharp bending, kinking, flattening, or twisting.
- Tighten the hose clamps securely.



A. Cooling Hoses

B. Breather Hose



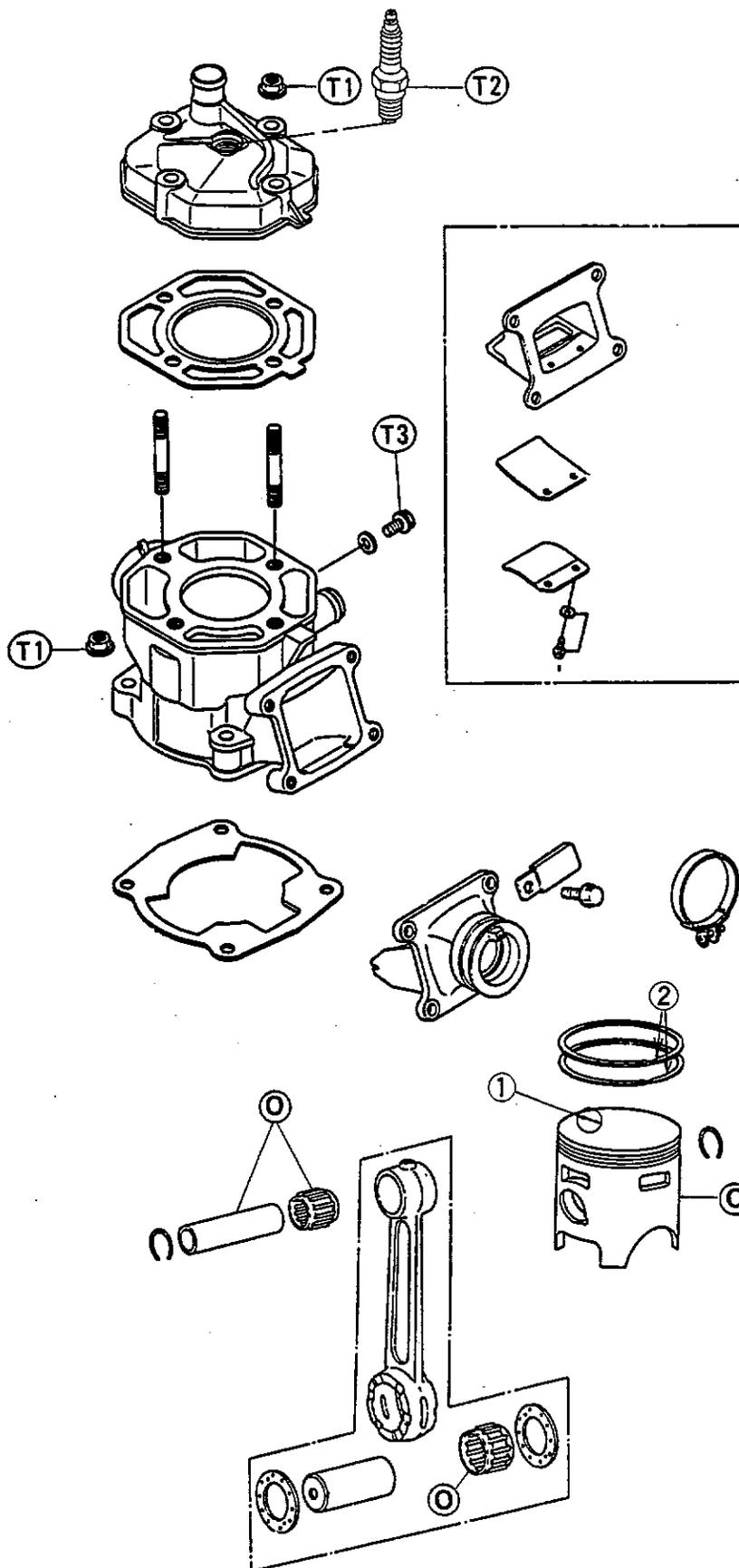
# Engine Top End

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KX80:

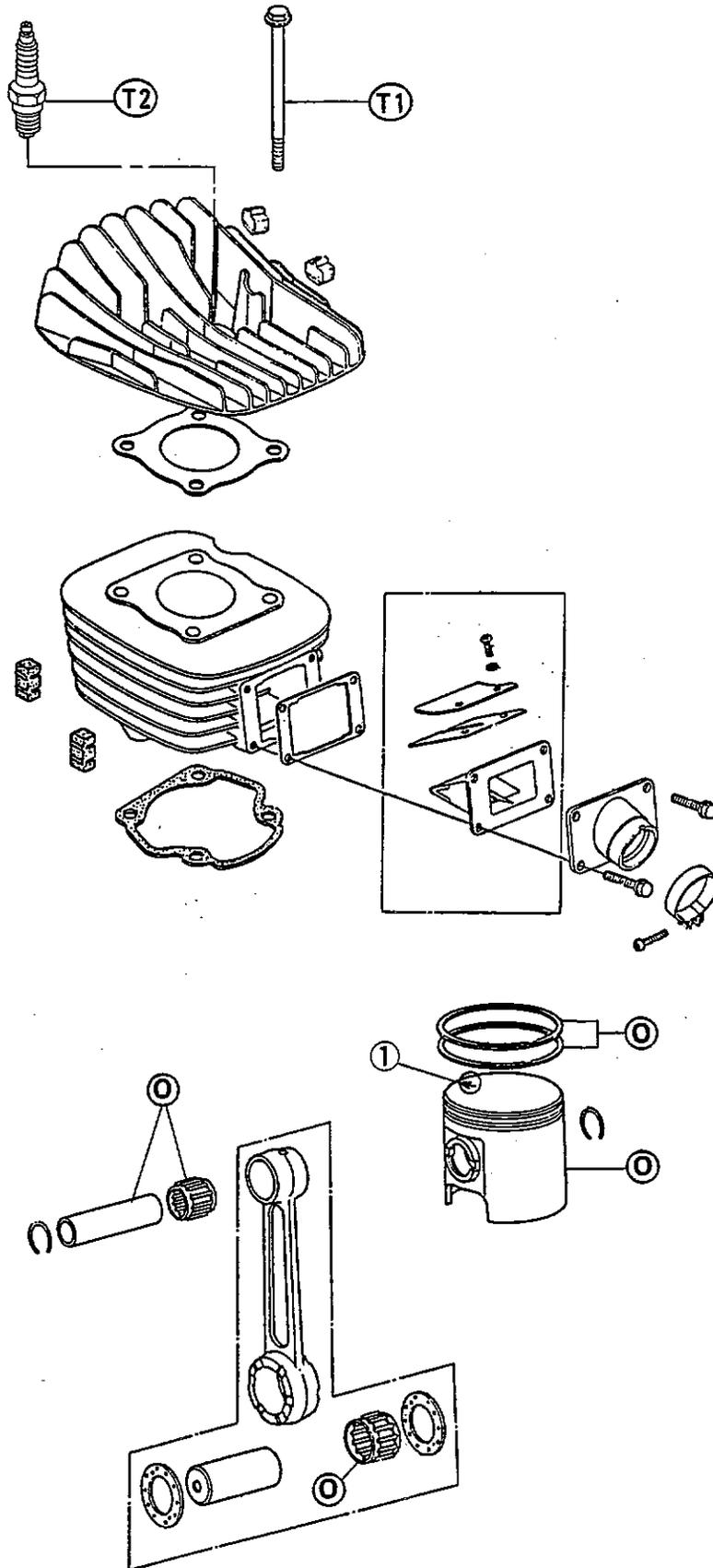


- 1. Arrow mark must be pointed toward the front
- 2. N Mark
- O: Apply a 2-stroke engine oil to the surface.

- T1: 25 N-m (2.5 kg-m, 18.0 ft-lb)
- T2: 27 N-m (2.8 kg-m, 20.0 ft-lb)
- T3: 9 N-m (0.9 kg-m, 78 in-lb)

# 4-4 ENGINE TOP END

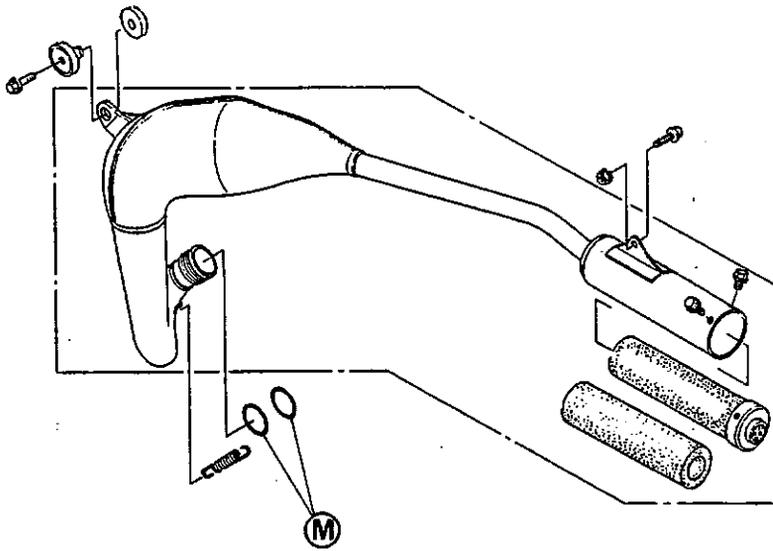
KDX80:



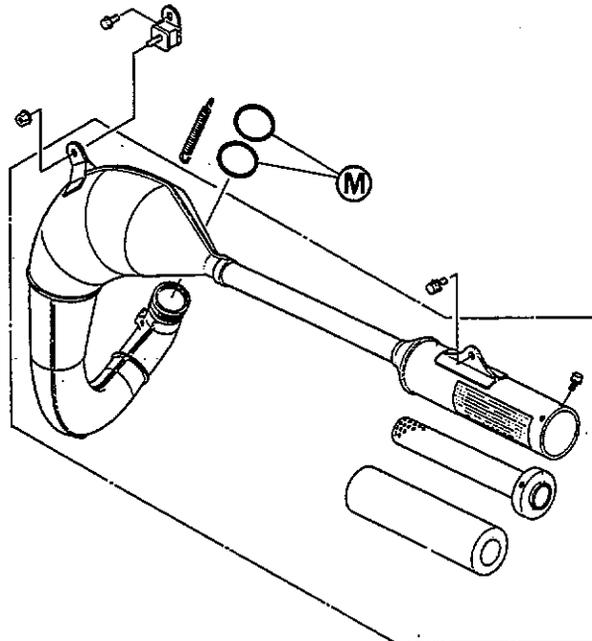
1. Arrow mark must be pointed toward the front  
O: Apply a 2-stroke engine oil to the surface.

T1: 25 N-m (2.5 kg-m, 18.0 ft-lb)  
T2: 27 N-m (2.8 kg-m, 20.0 ft-lb)

KX60:



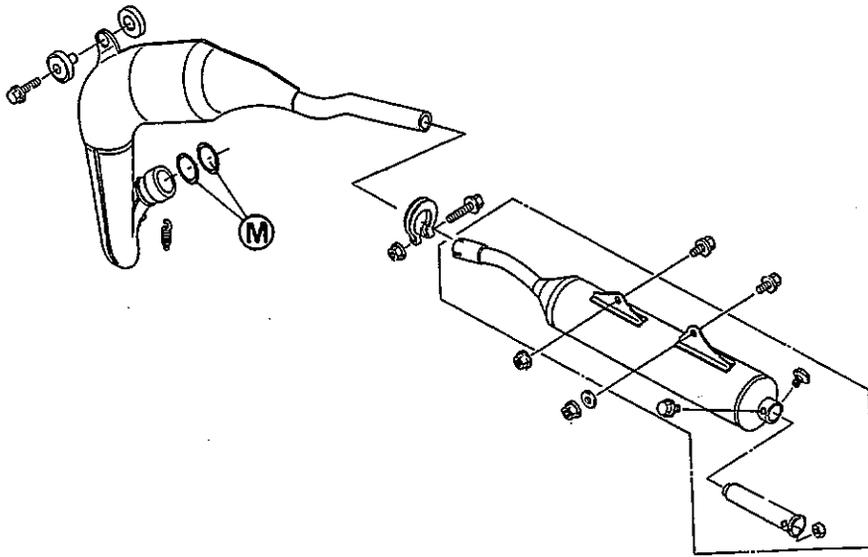
KX80:



**M : Apply a molybdenum disulfide grease.**

## 4-6 ENGINE TOP END

KDX80:



**M : Apply a molybdenum disulfide grease.**

.....  
**Specifications**  
 .....

**KX60:**

Item	Standard	Service Limit
<b>Cylinder Head:</b> Cylinder compression  Cylinder head warp	(usable range) 770 - 1200 kPa (7.7 - 12 kg/cm <sup>2</sup> , 109 - 171 psi) ----	----  0.03 mm
<b>Cylinder, Piston:</b> Cylinder inside diameter Piston diameter Piston/cylinder clearance Piston ring/groove clearance Piston ring groove width Piston ring thickness Piston ring end gap Piston pin diameter Piston pin hole diameter Small end inside diameter	43.000 - 43.015 mm 42.965 - 42.980 mm 0.030 - 0.040 mm 0.02 - 0.06 mm 1.01 - 1.03 mm 0.97 - 0.99 mm 0.15 - 0.35 mm 11.995 - 12.000 mm 12.000 - 12.006 mm 16.002 - 16.013 mm	43.10 mm 42.83 mm ---- 0.16 mm 1.10 mm 0.9 mm 0.70 mm 11.96 mm 12.07 mm 16.05 mm

## 4-8 ENGINE TOP END

### KX80:

Item	Standard	Service Limit
<b>Cylinder Head:</b> Cylinder compression  Cylinder head warp	(usable range) 840 – 1300 kPa (8.4 – 13 kg/cm <sup>2</sup> , 119 – 185 psi) ----	----  0.03 mm
<b>Cylinder, Piston:</b> Cylinder inside diameter: KX80L.N KX80M.P Piston diameter: KX80L.M KX80M.P Piston/cylinder clearance Piston ring/groove clearance Top Second Piston ring groove width Top Second Piston ring thickness Piston ring end gap Piston pin diameter Piston pin hole diameter Small end inside diameter	48.000 – 48.015 mm 47.000 – 47.015 mm 47.939 – 47.954 mm 46.939 – 46.954 mm 0.050 – 0.070 mm 0.04 – 0.08 mm 0.02 – 0.06 mm 1.03 – 1.05 mm 1.01 – 1.03 mm 0.97 – 0.99 mm 0.3 – 0.5 mm 13.995 – 14.000 mm 14.000 – 14.006 mm 18.002 – 18.013 mm	48.10 mm 47.10 mm 47.82 mm 46.82 mm ---- 0.18 mm 0.16 mm 1.13 mm 1.10 mm 0.9 mm 0.8 mm 13.96 mm 14.07 mm 18.05 mm

## KDX80:

Item	Standard	Service Limit
<b>Cylinder Head:</b>		
Cylinder compression	(usable range) 770 – 1200 kPa (7.7 – 12 kg/cm <sup>2</sup> , 109 – 171 psi)	---
Cylinder head warp	---	0.03 mm
<b>Cylinder, Piston:</b>		
Cylind inside diameter	48.000 – 48.015 mm	48.10 mm
Piston diameter	47.995 – 47.970 mm	47.82 mm
Piston/cylinder clearance	0.040 – 0.050 mm	---
Piston ring/groove clearance	0.02 – 0.06 mm	0.16 mm
Piston ring groove width	1.01 – 1.03 mm	1.10 mm
Piston ring thickness	0.97 – 0.99 mm	0.9 mm
Piston ring end gap	0.15 – 0.35 mm	0.70 mm
Piston pin diameter	13.995 – 14.000 mm	13.96 mm
Piston pin hole diameter	14.000 – 14.006 mm	14.07mm
Small end inside diameter	18.002 – 18.013 mm	18.05 mm

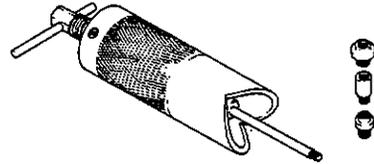
## 4-10 ENGINE TOP END

.....  
**Special Tool**  
.....

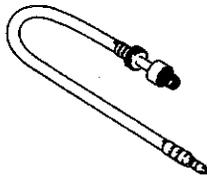
**Compression Gauge: 57001-221**



**Piston Pin Puller Assembly: 57001-910**



**Adapter: 57001-1159**



**Piston Ring Pliers: 57001-115**



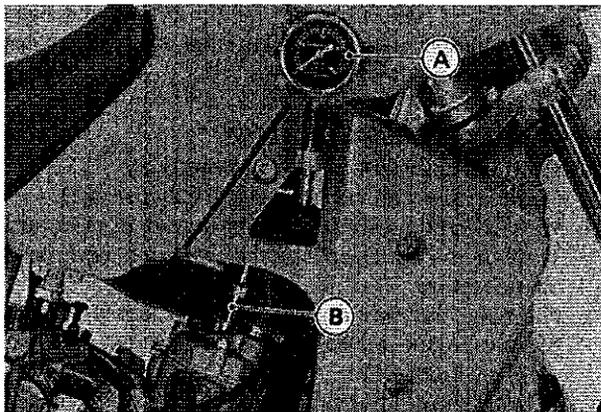
**Cylinder Head**

**Cylinder Compression Measurement**

- Start the engine
- Thoroughly warm up the engine so that the engine oil between the piston and cylinder wall will help seal compression as it does during normal running.
- Stop the engine.
- Remove the spark plug, and screw a compression gauge (special tool) firmly into the spark plug hole.
- With the throttle fully open, turn the engine over sharply with the kickstarter several times until the compression gauge stops rising; the compression is the highest reading obtainable.

**Cylinder Compression (Usable Range):**

- KX60** : 770–1200kPa (7.7–12 kg/cm<sup>2</sup>, 109–171 psi)
- KX80** : 840–1300kPa (8.4–13 kg/cm<sup>2</sup>, 119–185 psi)
- KDX80** : 770–1200kPa (7.7–12 kg/cm<sup>2</sup>, 109–171 psi)



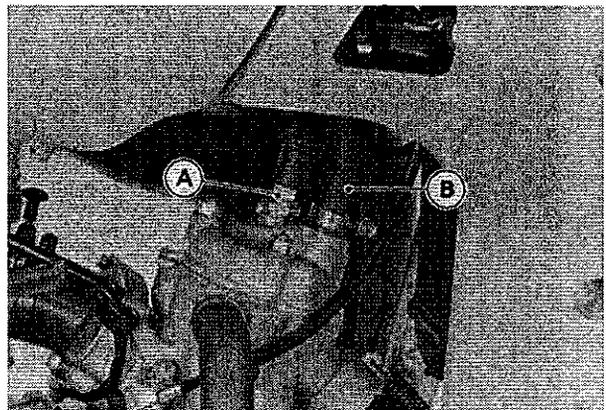
A. Compression Gauge: 57001-221  
 B. Adapter: 57001-1159

- ★ If cylinder compression is higher than the usable range, check the following:
  1. Carbon build-up on the piston head and cylinder head.
    - clean off any carbon on the piston head and cylinder head.
  2. Cylinder head gasket, cylinder base gasket — use only the proper gaskets for the cylinder head and base. The use of gaskets of the incorrect thickness will change the compression.

- ★ If cylinder compression is lower than the usable range, check the following:
  1. Piston/cylinder clearance, piston seizure.
  2. Gas leakage around the cylinder head — replace the damaged gasket and check the cylinder head for warping.
  3. Piston ring, piston ring groove.

**Cylinder Head Removal**

- Drain the coolant (see Coolant Change in the cooling System chapter).
- Remove the following parts:
  - Spark Plug
  - Water Hose Lower End



A. Spark Plug  
 B. Water Hose

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

**Cylinder Head Installation Notes**

- Installation is the reverse of removal.
- Replace the head gasket with a new one.
- Scrape out any carbon and clean the head with a high flash-point solvent.
- Check for a crust of minerals and rust in the head water jacket, and remove them if necessary.

## 4-12 ENGINE TOP END

- Tighten the cylinder head bolts or nuts to the specified torque.

### Tightening Torque:

**25 N-m (2.5 kg-m, 18 ft-lb)**

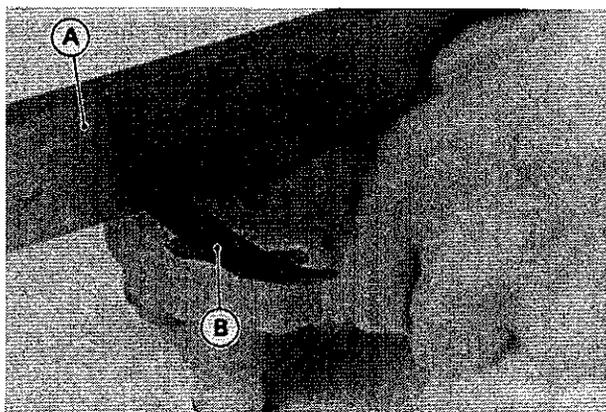
- Tighten the spark plug to the specified torque.

### Tightening Torque:

**27 N-m (2.8 kg-m, 20 ft-lb)**

### Cylinder Head Warp Inspection

- Lay a straightedge across the lower surface of the head at several different points, and measure warp by inserting a thickness gauge between the straightedge and the head.
- ★ If warp exceeds the service limit, repair the mating surface. Replace the cylinder head if the mating surface is badly damaged.



A. Straightedge

B. Thickness Gauge

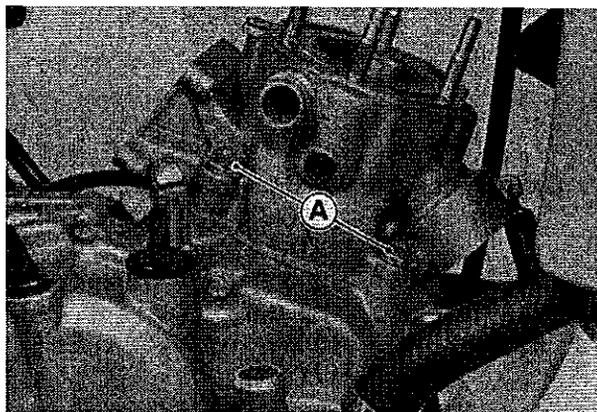
### Cylinder Head Warp

**Service Limit: 0.03 mm**

## Cylinder, Piston

### Cylinder Removal

- Drain the coolant (KX60, 80).
- Remove the following parts:
  - Cylinder Head
  - Clutch Cable Lower End
- Loosen the clamps, and pull the carburetor out of the holder and the air cleaner duct.
- Remove the carburetor holder mounting bolts, and pull the holder out to the rear.
- For the KX80 model; remove the cylinder nuts.



A. 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.

### Cylinder Installation Notes

- Installation is the reverse of removal.
- Scrape any carbon out of the exhaust port.
- For KX60,80 model; check for a crust of minerals and rust in the cylinder water jacket, and remove them if necessary.
- Replace the cylinder base gasket with a new one.
- Apply engine oil to the piston surface, piston rings and cylinder bore.
- Check to see that the pin in each piston ring groove is between the ends of the piston ring, and fit the base of the cylinder over each ring, pressing in on opposite sides of the ring as necessary. Be certain that the rings do not slip out of position.
- For the KX80; tighten the cylinder nuts to the specified torque.

### Tightening Torque:

**25 N-m (2.5 kg-m, 18 ft-lb)**

- Tighten the cylinder head bolts or nuts to the specified torque.

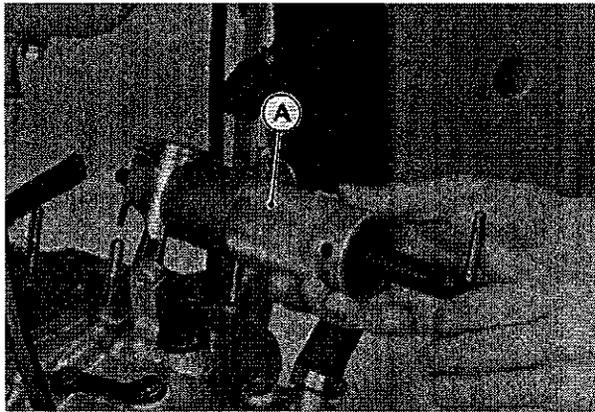
### Tightening Torque:

**25 N-m (2.5 kg-m, 18 ft-lb)**

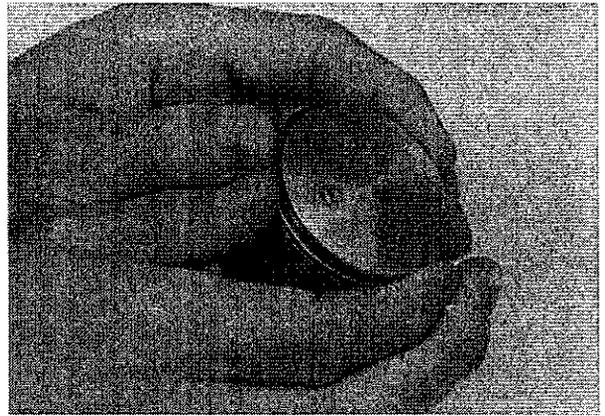
- Refer to Carburetor Installation Notes in the Fuel System chapter for carburetor installation.

**Piston Removal**

- Remove the cylinder.
- Stuff a clean cloth into the crankcase opening around the connecting rod so that no parts will fall into the crankcase.
- Remove one of the piston pin snap rings with needle nose pliers.
- Remove the piston by pushing the piston pin out the side from which the snap ring was removed. Use a piston pin puller assembly (special tool), if the pin is tight.



A. Piston Pin Puller Assembly: 57001-910

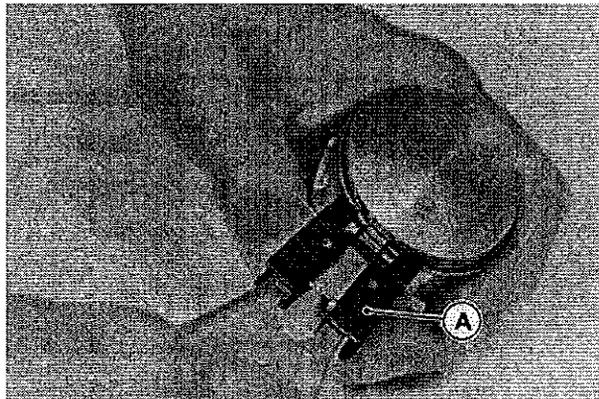
**Piston Installation Notes**

- Installation is the reverse of removal.
- Stuff a clean cloth into the crankcase opening around the connecting rod so that no parts will fall into the crankcase.
- Scrape any carbon off of the piston, then lightly polish the piston with fine emery cloth.
- Clean carbon and dirt out of the piston ring grooves using a suitable tool.

**CAUTION**

- Remove the top and second rings with piston ring pliers (special tool). If the special tool is not available, carefully spread the ring opening with your thumbs and then push up on the opposite side of the ring to remove it.

- Carbon particles can be very abrasive to piston rings. Don't allow such particles to fall onto the cylinder walls.

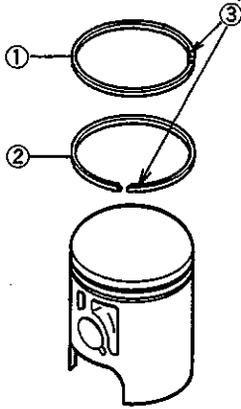


A. Piston Ring Pliers: 57001-115

- When installing the piston rings on the piston, note the following:
  - If installing the piston rings by hand, first fit one end of the piston ring against the pin in the ring groove, spread the ring opening with the other hand and then slip the ring into the groove.
  - Identify the top ring and the second ring by their different cross sections.
  - For the KX80 model; both the top and the second rings have an N mark on their upper surface.

## 4-14 ENGINE TOP END

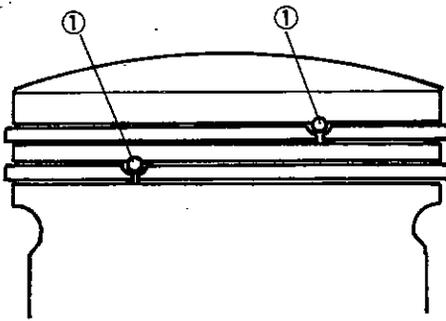
### Piston Rings



1. Top Ring
2. Second Ring
3. N Mark (upward, KX80 only).

○ Install the rings so that the pin in each piston ring groove is between the ends of the piston ring.

### Piston Ring Position



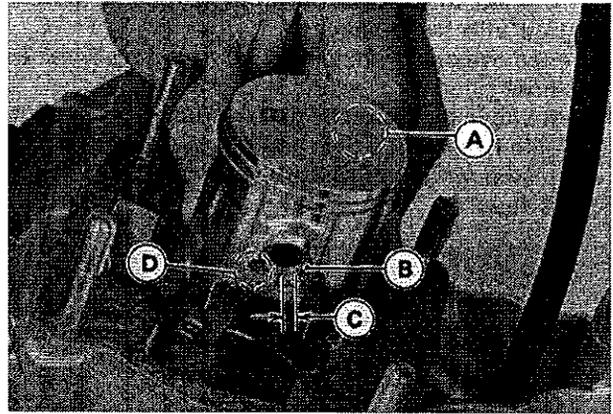
1. Pin

- Apply 2-stroke engine oil to the connecting rod needle bearing and the piston pin.
- Install the piston and piston pin. The arrow on the top of the piston must point toward the front.
- When installing a piston pin snap ring, compress it only enough to install it and no more.

**CAUTION**

○ Do not reuse snap rings, as removal weakens and deforms them. They could fall out and score the cylinder wall.

- Fit a new piston pin snap ring into the side of the piston so that the ring opening does not coincide with the notch in the edge of the piston pin hole.



- A. Arrow  
B. Snap Ring  
C. Ring Opening  
D. Notch

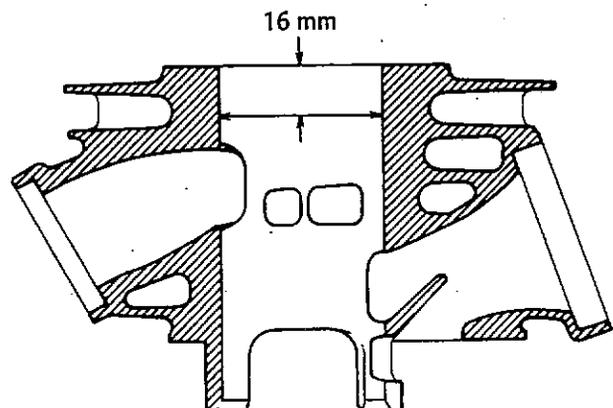
### Cylinder Wear Inspection

#### NOTE

○ Measure the cylinder inside diameter when the cylinder is cold (room or ambient temperature).

- Inspect the inside of the cylinder for scratches and abnormal wear.
- ★ If the cylinder is damaged or badly worn, replace it with a new one.
- Since there is a difference in cylinder wear in different directions, take a side-to-side and a front-to-back measurement shown in the figure.
- ★ If any of the cylinder inside diameter measurements exceeds the service limit, the cylinder must be replaced with a new one since the ELECTRO FUSION cylinder cannot be bored or honed.

### Cylinder Inside Diameter Measurement



**KX60:**

**Standard:** 43.000–43.015mm, and less than 0.01mm difference between any two measurements.

**Service Limit:** 43.10mm, or more than 0.015mm difference between any two measurements.

**KX80L.N:**

**Standard:** 48.000–48.015mm, and less than 0.01mm difference between any two measurements.

**Service Limit:** 48.10mm, or more than 0.05mm difference between any two measurements

**KX80M.P:**

**Standard:** 47.000–47.015mm, and less than 0.01mm difference between any two measurements

**Service Limit:** 47.000mm, or more than 0.05mm difference between any two measurements

**KDX80:**

**Standard:** 48.000–48.015mm, and less than 0.01mm difference between any two measurements.

**Service Limit:** 48.10mm, or more than 0.05mm difference between any two measurements.

**Piston Diameter Measurement**

● Measure the outside diameter of the piston 5 mm (KX60, KDX80) or 17 mm (KX80) up from the bottom of the piston at a right angle to the direction of the piston pin.

★ If the measurement is under the service limit, replace the piston.

**Piston Diameter**

**KX60:**

**Standard:** 42.965 – 42.980 mm  
**Service Limit:** 42.83 mm

**KX80L.N:**

**Standard:** 47.939 – 47.945 mm  
**Service Limit:** 47.82 mm

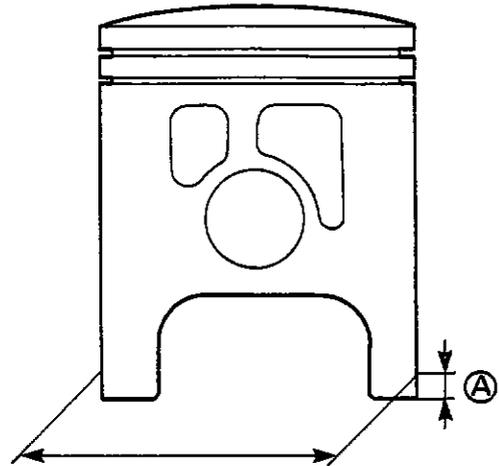
**KX80M.P:**

**Standard:** 46.939 – 46.954 mm  
**Service Limit:** 46.82 mm

**KDX80:**

**Standard:** 47.955 – 47.970 mm  
**Service Limit:** 47.82 mm

**Piston Diameter Measurement**



(A): KX60, KDX80 – 5 mm  
 KX80 – 17 mm

**Piston/Cylinder Clearance**

The piston-to-cylinder clearance is measured whenever a piston or cylinder is replaced with a new one. The standard piston-to-cylinder clearance must be adhered to whenever the cylinder is replaced.

If only a piston is replaced, the clearance may exceed the standard slightly. But it must not be less than the minimum, in order to avoid piston seizure.

The most accurate way to find the piston clearance is by making separate piston and cylinder diameter measurements and then computing the difference between the two values. Measure the piston diameter as just described, and measure the cylinder diameter at the very bottom of the cylinder.

**Piston/Cylinder Clearance**

**KX60:** 0.030 – 0.040 mm  
**KX80:** 0.050 – 0.070 mm  
**KDX80:** 0.040 – 0.050 mm

## 4-16 ENGINE TOP END

### *Piston Ring, Piston Ring Groove Inspection*

- Visually inspect the piston rings and the piston ring grooves.
- ★If the rings are worn unevenly or damaged, they must be replaced.
- ★If the piston ring grooves are worn unevenly or damaged, the piston must be replaced and fitted with new rings.
- Check for uneven groove wear by inspecting the ring seating.
- ★The rings should fit perfectly parallel to the groove surfaces. If not, the piston must be replaced.
- With the piston ring in its groove, make several measurements with a thickness gauge to determine piston ring/groove clearance.
- ★If the clearance exceeds the service limit, measure the thickness of the piston ring.
- ★If the ring has worn down to less than the service limit, replace the ring; if the groove width exceeds the service limit, replace the piston.

### **Piston Ring/Groove Clearance**

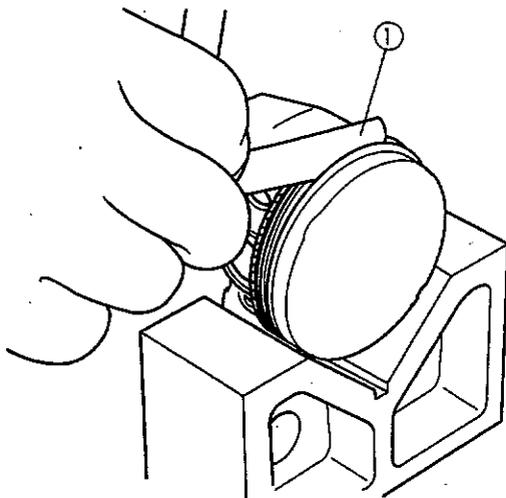
**Standard: 0.02—0.06 mm**  
**Service Limit: 0.16 mm**

### **Piston Ring Thickness**

**Standard: 0.97—0.99 mm**  
**Service Limit: 0.9 mm**

### **Piston Ring Groove Width**

**Standard: 1.01—1.03 mm**  
**Service Limit: 1.10 mm**



1. Thickness Gauge

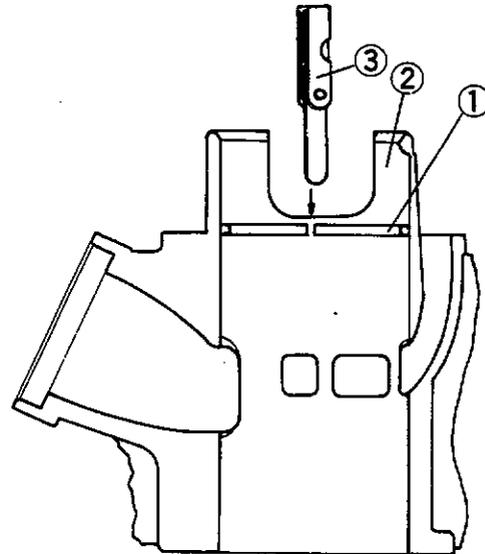
### *Piston Ring End Gap Inspection*

- Place the piston ring inside the cylinder, using the piston to locate the ring squarely in place.
- Set it close to the bottom of the cylinder, where cylinder wear is low.
- Measure the gap between the ends of the ring with a thickness gauge.
- ★If the gap is wider than the service limit, the ring is worn and must be replaced.

### **Piston Ring End Gap**

**Standard: 0.15—0.35 mm**  
**Service Limit: 0.70 mm**

### **Ring End Gap Measurement**



1. Piston Ring  
2. Cylinder Block

3. Thickness Gauge

### *Piston, Piston Pin, Connecting Rod Wear Inspection*

- Visually inspect the snap ring still fitted in place.
- ★If the ring shows weakness or deformation, replace the ring. Also if the pin hole groove shows excessive wear, replace the piston.
- Measure the diameter of the piston pin with a micrometer.
- ★If the piston pin diameter is less than the service limit at any point, replace the piston pin.
- Using a cylinder gauge, measure the diameter of both of piston pin holes in the piston and the inside diameter of the connecting rod small end.
- ★If either piston pin hole diameter exceeds the service limit, replace the piston.
- ★If the connecting rod small end inside diameter exceeds the service limit, replace the crankshaft assembly.

**Piston Pin Diameter**

**KX60:**

**Standard:** 11.995–12.000 mm  
**Service Limit:** 11.96 mm

**KX80, KDX80:**

**Standard:** 13.995–14.000 mm  
**Service Limit:** 13.96 mm

**Piston Pin Hole Diameter**

**KX60:**

**Standard:** 12.000–12.006 mm  
**Service Limit:** 12.07 mm

**KX80, KDX80:**

**Standard:** 14.000–14.006 mm  
**Service Limit:** 14.07 mm

**Small End Inside Diameter**

**KX60:**

**Standard:** 16.002–16.013 mm  
**Service Limit:** 16.05 mm

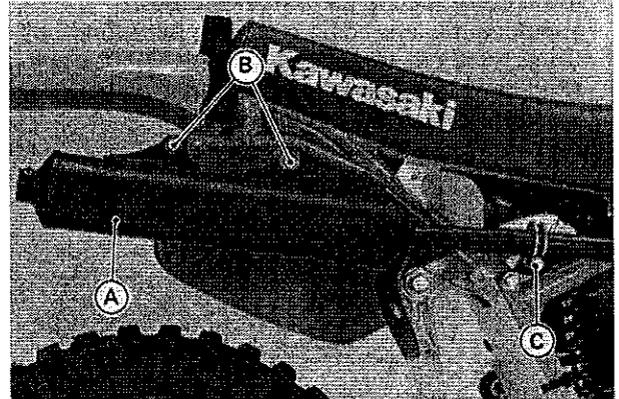
**KX80, KDX80:**

**Standard:** 18.002–18.013 mm  
**Service Limit:** 18.05 mm

.....  
**Muffler (Expansion Chamber, Silencer) or Spark Arrester**  
 .....

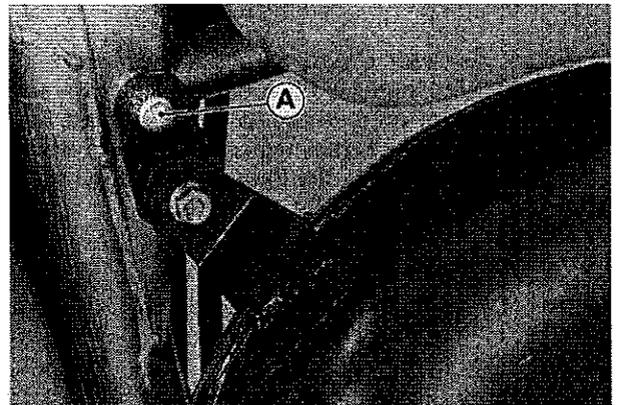
*Expansion Chamber Removal*

- Remove the right or left side covers.
- For the KDX80; Loosen the clamp bolt, remove the spark arrester mounting bolts, and pull the spark arrester off toward the rear.



A. Spark Arrester  
 B. Mounting bolts  
 C. Clamp bolt

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



A. Muffler Damper Mounting Bolt

## 4-18 ENGINE TOP END

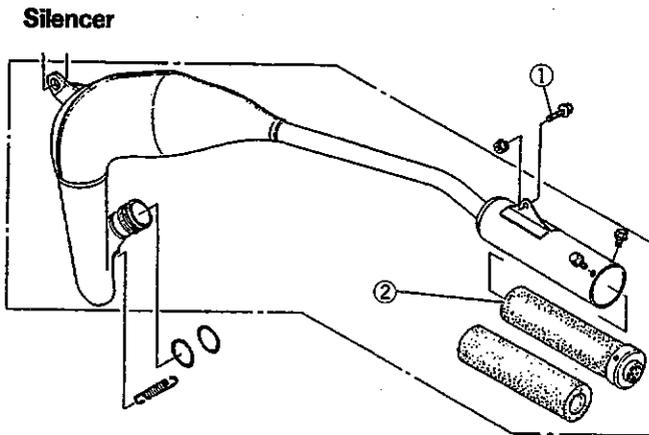
### Expansion Chamber Installation Notes

- Installation is the reverse of removal.
- Scrape any carbon out of the expansion chamber.
- Check the exhaust O-rings for signs of damage. If necessary, replace them with new ones.

### Silencer Wool Change (KX model)

Replace the silencer wool if exhaust noise becomes too loud or engine performance drops.

- Remove the inner pipe mounting bolts, and pull the inner pipe out toward the rear.
- Pull off the old silencer wool, and wrap new silencer wool around the inner pipe.
- Install inner pipe into the silencer.



1. Mounting Bolt

2. Silencer wool

### Spark Arrester Cleaning (KDX model)

The KDX model is equipped with a spark arrester approved for off-road use by the U.S. Forest Service. It must be properly maintained to ensure its efficiency. In accordance with the Periodic Maintenance chart, clean the spark arrester.

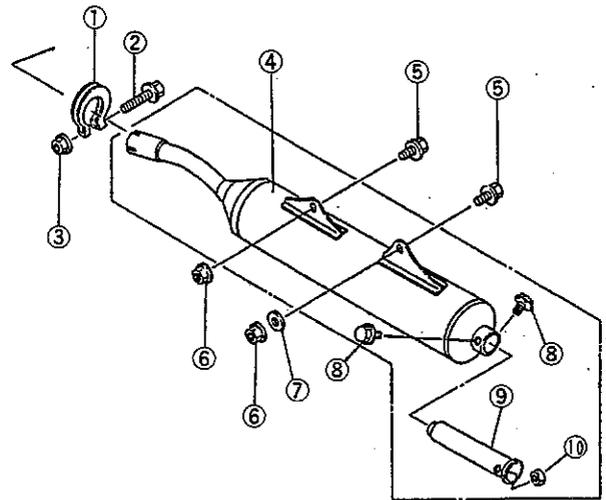
### CAUTION

- The spark arrester must be installed correctly and functioning properly to provide adequate fire protection.

### WARNING

- To avoid burns, be sure the exhaust system is cold before cleaning the spark arrester. The exhaust system becomes very hot soon after the engine is started.

- Remove the inner pipe mounting bolts and pull the inner pipe out of the spark arrester.
- Loosen the clamp bolt, unscrew the spark arrester mounting bolts, and remove the spark arrester from the rear end of the muffler.
- With a wire brush, remove the carbon from the inner pipe and the inside of the spark arrester.
- Check that the clamp is in good condition. Replace it, if necessary.
- Install the spark arrester on the rear end of the muffler.
- Slide the inner pipe into the spark arrester, and tighten the bolts securely.



1. Clamp
2. Bolt
3. Nut
4. Spark Arrester
5. Bolt
6. Nut
7. Flat Washer
8. Bolt
9. Inner Pipe
10. Nut

# Engine Right Side

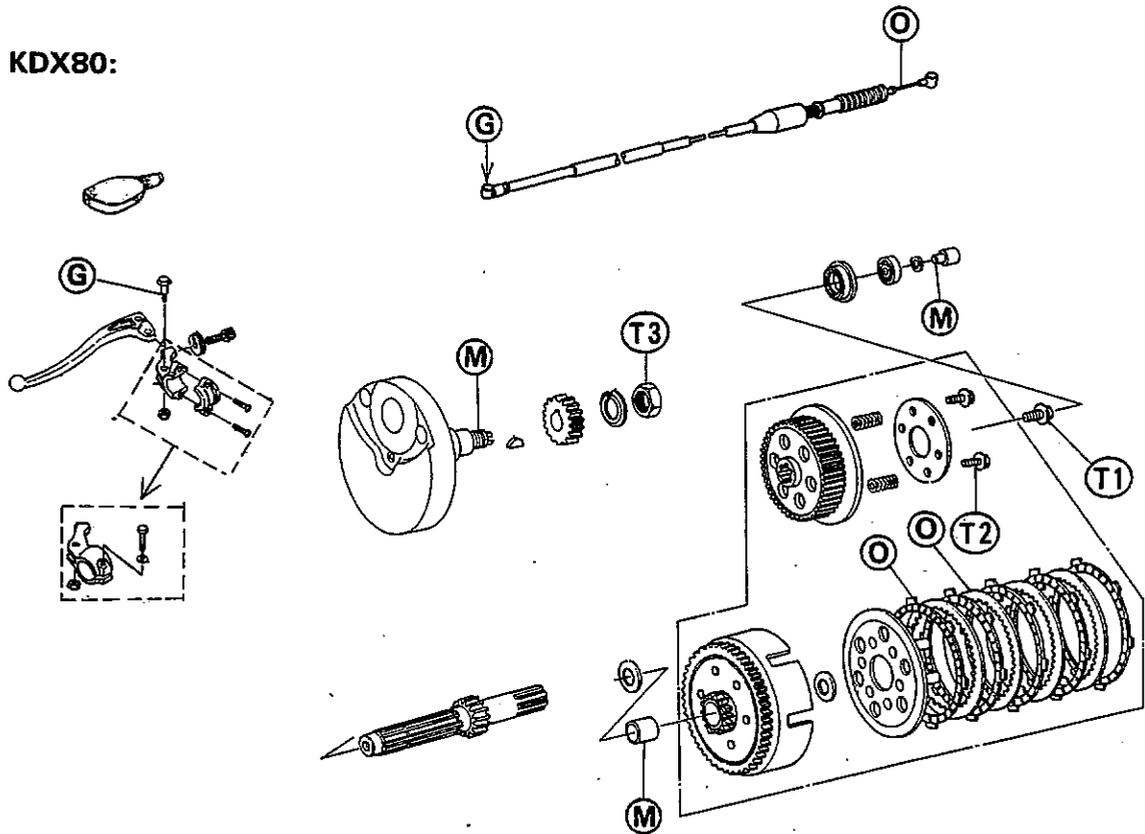
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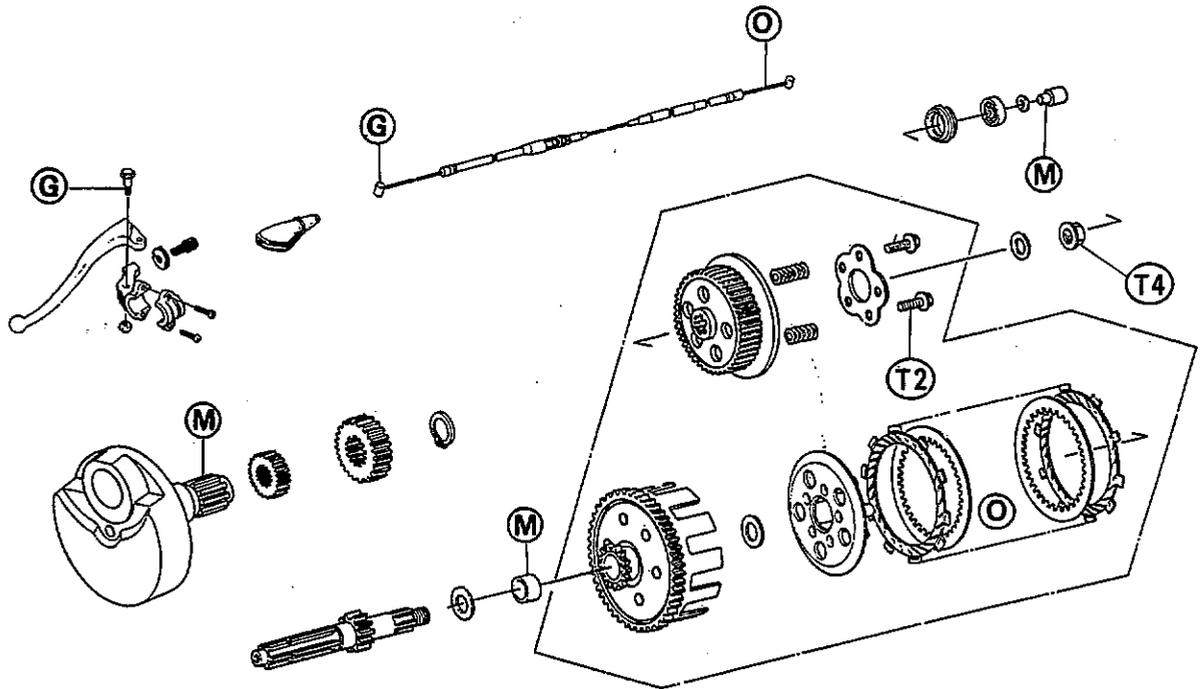
## 5-2 ENGINE RIGHT SIDE

### Exploded View

KX60, KDX80:



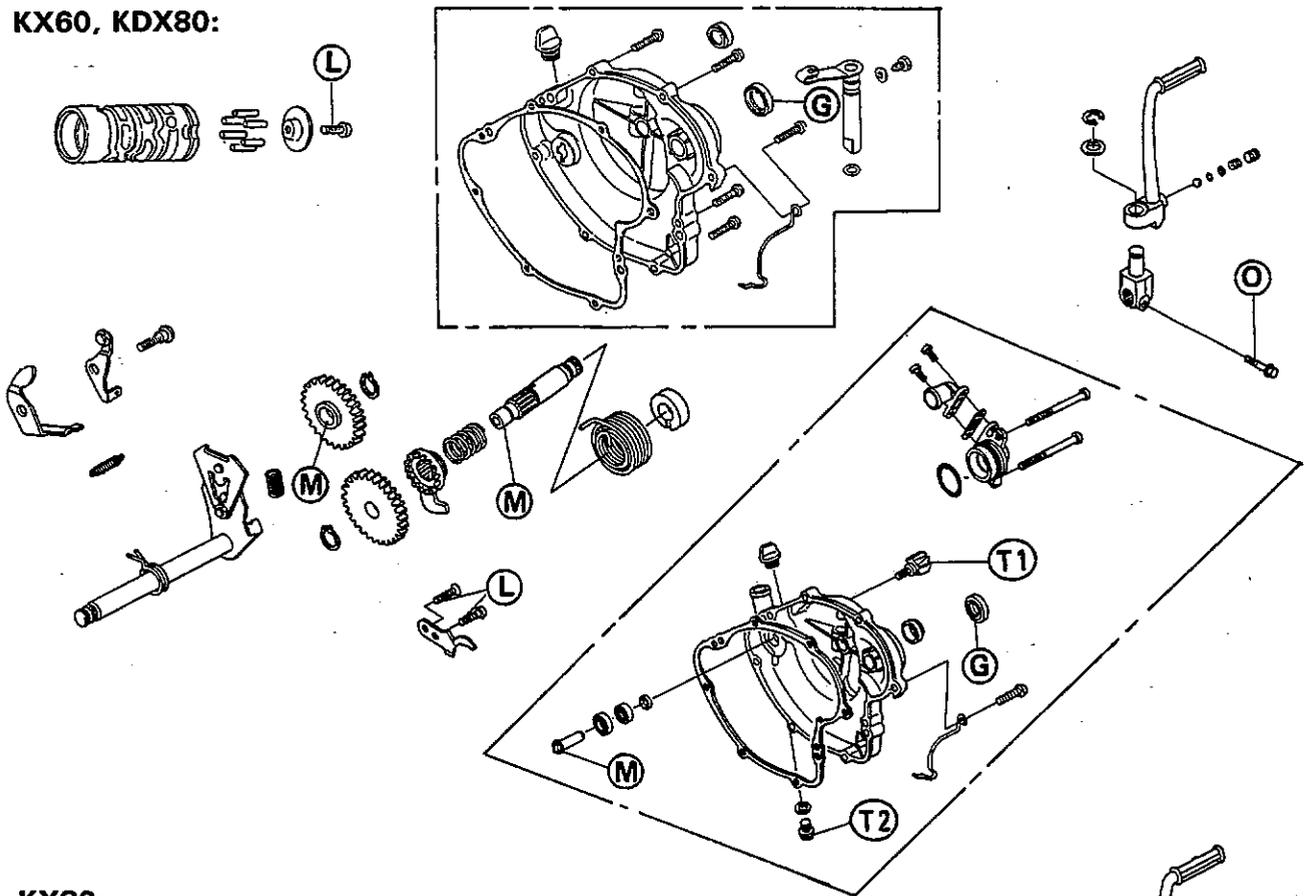
KX80:



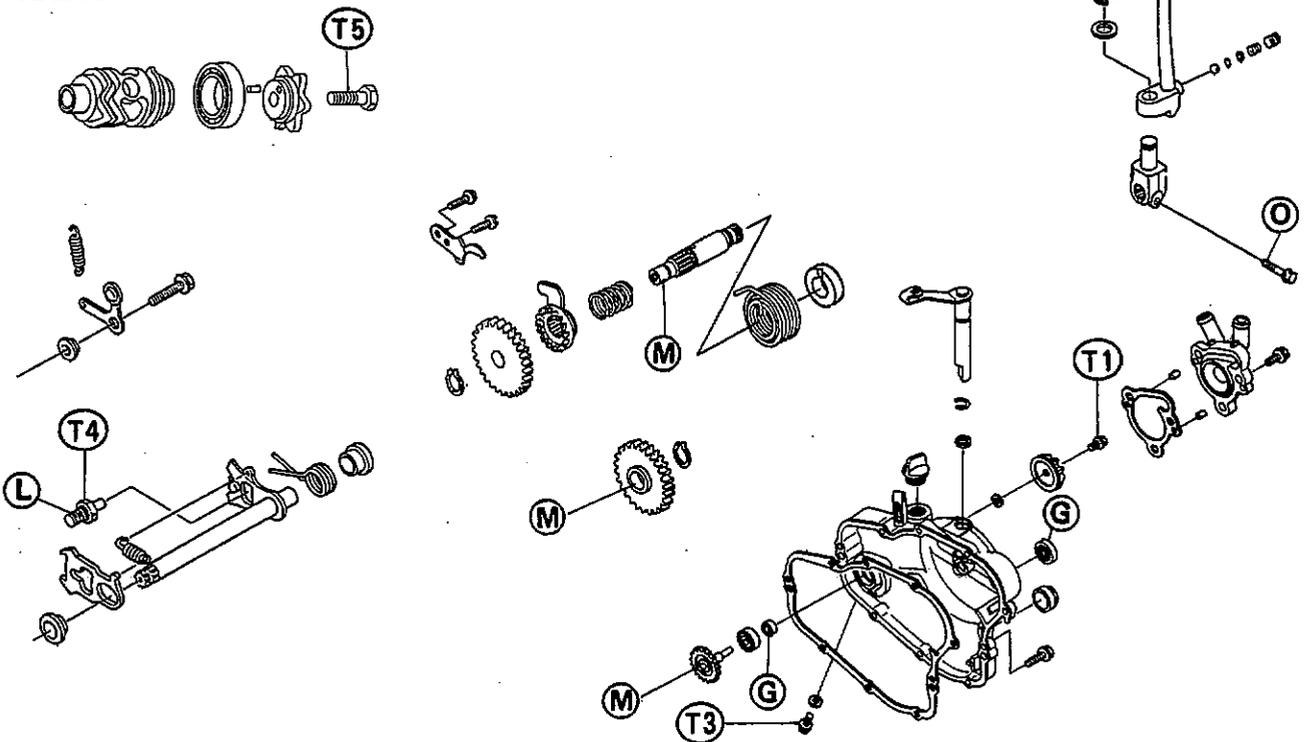
**M** : Apply molybdenum disulfide grease.  
**G** : Apply high temperature grease.  
**O** : Apply transmission oil.

**T1** : 64 N-m (6.5 kg-m, 47 ft-lb)  
**T2** : 9.5 N-m (0.95 kg-m, 82 in-lb)  
**T3** : 49 N-m (5.0 kg-m, 36 ft-lb)  
**T4** : 78 N-m (8.0 kg-m, 58 ft-lb)

KX60, KDX80:



KX80:



- 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** : 8.5 N-m (0.85 kg-m, 73 ft-lb)
- T2** : 25 N-m (2.5 kg-m, 18 ft-lb)
- T3** : 8 N-m (0.8 kg-m, 69 in-lb)
- T4** : 20 N-m (2.0 kg-m, 14.5 ft-lb)
- T5** : 23 N-m (2.3 kg-m, 17 ft-lb)

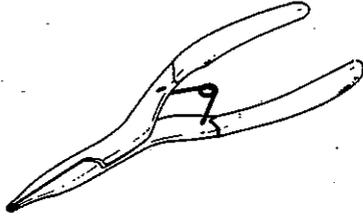
## 5-4 ENGINE RIGHT SIDE

.....  
**Specifications**  
.....

Item	Standard	Service Limit
<b>Clutch:</b>		
Clutch lever free play	2 – 3 mm	---
Clutch Spring free length		
KX60:	26.6 mm	25.3 mm
KX80:	33.5 mm	31.8 mm
KDX80:	28.1 mm	26.7 mm
Friction plate thickness	3.1 – 3.3 mm	2.9 mm
Friction plate/clutch housing clearance	0.35 – 0.60 mm	0.9 mm
Friction and steel plate warp	not more than 0.15 mm	0.3 mm

.....  
**Special Tools**  
.....

**Circlip Pliers: 57001-144**



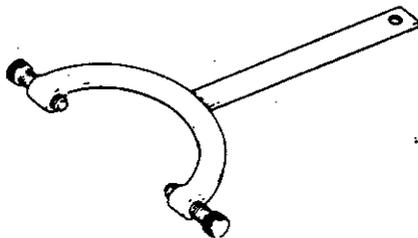
**Kick Shaft Oil Seal Guide: 57001-263**



**Shift Shaft Oil Seal Guide: 57001-264**



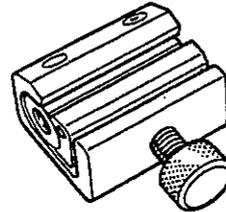
**Rotor Holder: 57001-1248**



**Rotor Holder Adapter "A": 57001-1108**



**Pressure Cable Luber: K56019-021**



**NOTE**

oThe flywheel holder (P/N 57001-1313) can be used instead of the rotor holder (P/N 57001-1248) and adapter "A" (P/N 57001-1108).

## 5-6 ENGINE RIGHT

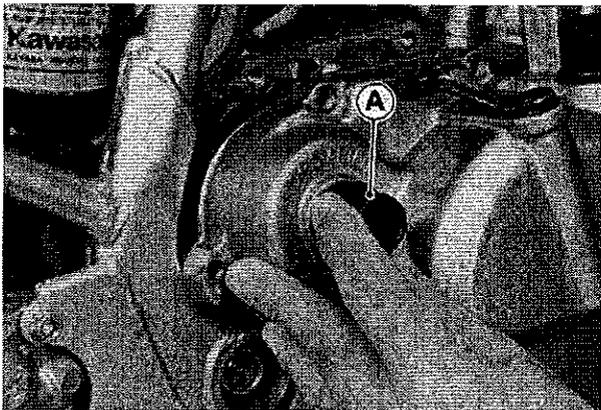
### RIGHT ENGINE COVER

#### *Right Engine Cover Removal*

- Drain the transmission oil (see Transmission Oil Change in the Engine Bottom End/Transmission chapter).
- For the KX models; drain the Coolant (see Coolant Change in the Cooling System chapter).
- Remove the following parts.
  - Kick Pedal
  - Clutch Cable Lower End
  - Brake Pedal
  - Water Pump Cover (KX models)
  - Impeller (KX models)
- For the KX models; pull off the water pump hose lower end.
- Remove the right engine cover mounting bolts.
- Turn the clutch release lever toward the rear and free the release shaft from the clutch spring plate pusher.
- Take off the oil filler cap and remove the right engine cover.

#### *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.
- Turn the clutch release lever toward the rear.
- Stick the new right engine cover gasket in position with a thin layer of grease.
- Install the right engine cover using the kick shaft oil seal guide (special tool) to protect the cover oil seal.

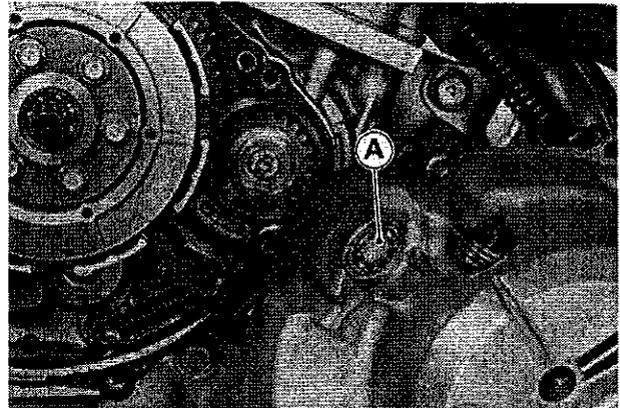


A. Kick Shaft Oil Seal Guide: 57001-263

- Apply grease to the inside of the brake pedal boss.
- For the KX models; fill the cooling system (see Coolant Filling in the Cooling System chapter).
- Fill the transmission with oil (see Transmission Oil Change in Engine Bottom End/Transmission chapter).
- Adjust the following parts.
  - Clutch Cable
  - Rear Brake

#### *Right Engine Cover Disassembly*

- Remove the right engine cover.
- Pull off the water pump shaft.

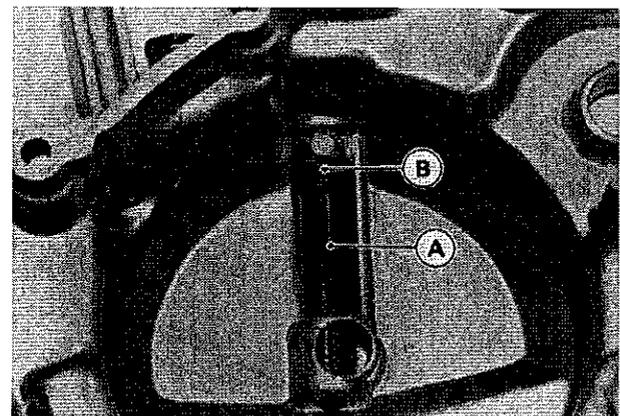


A. Water Pump Shaft

#### CAUTION

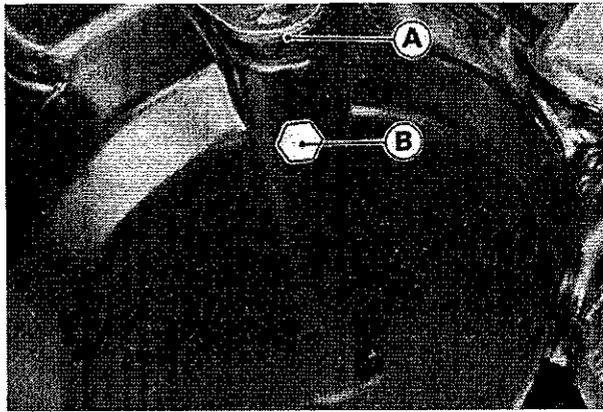
- Do not remove the clutch release shaft unless it is absolutely necessary. If removed, you must replace the O-ring and snap ring (KX models only) with new ones.

- For the KX models; remove the snap ring from the clutch release shaft and pull out the clutch release shaft.



A. Clutch Release Shaft      B. Snap Ring

- For the KDX model; remove the clutch release shaft bolt and pull out the clutch release shaft.



A. Clutch Release Shaft      B. Bolt

**Right Engine Cover Assembly Notes**

- Assembly is the reverse of disassembly.
- In case of the clutch release shaft has been removed, be sure to replace the snap ring and O-ring with new ones.
- For the KX models; tighten the impeller bolt to the specified torque.

**Tightening Torque:**

**8.5 N-m (0.85 kg-m, 73 in-lb)**

.....  
**Clutch**  
 .....

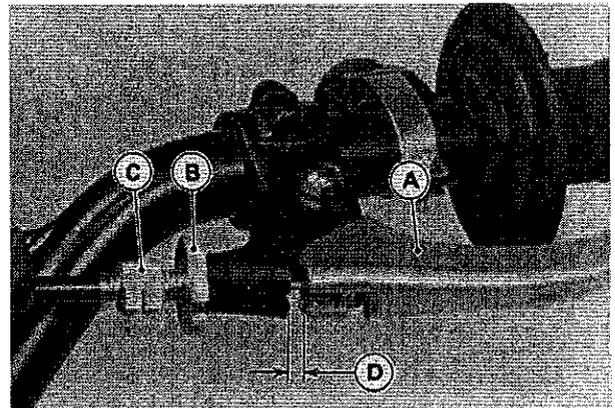
Proper clutch lever play between the clutch lever and the clutch lever holder is 2—3 mm. Play increase with cable stretch and friction plate wear, necessitating adjustment. When there is too much lever play, first try adjusting the cable at the clutch lever.

**WARNING**

- To avoid a serious burn, never touch the hot engine or exhaust chamber during clutch adjustment.

**Clutch Adjustment**

- Slide the clutch lever dust cover out of place.
- Loosen the knurled locknut, turn the adjuster to obtain the proper amount of lever play, and tighten the locknut.

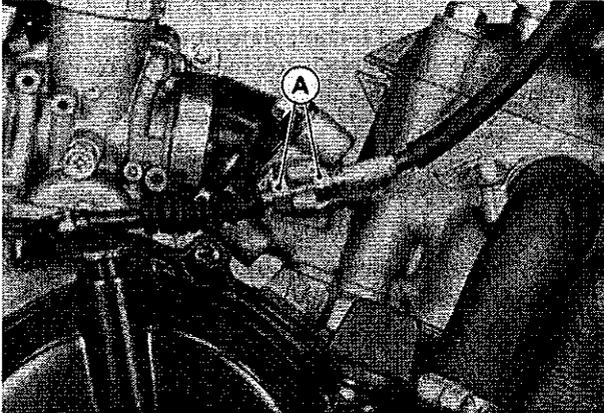


A. Clutch Lever      D. Clutch Lever Free Play  
 B. Knurled Locknut      2 — 3 mm  
 C. Adjuster

- Slide back the clutch lever dust cover.
- ★ If the adjuster at the clutch lever has reached its limit, adjust the cable with the adjuster at the bottom of the clutch cable (KX60, KDX80) or adjusting nut at the upper of the clutch cable (KX80).
- Loosen the knurled locknut at the clutch lever.
- Turn the adjuster in all the way, then tighten the knurled locknut.

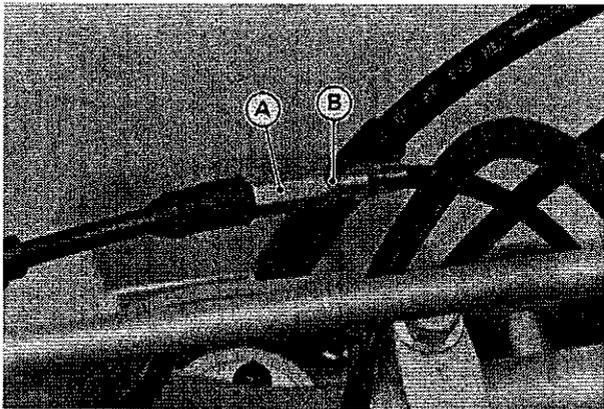
## 5-8 ENGINE RIGHT SIDE

- For the KX60, KDX80; loosen the nuts at the bottom of the cable, and turn the nuts so that clutch lever has 2 — 3 mm of play.



A. Nuts

- For the KX80; loosen the locknut at the upper of the clutch cable, and turn the adjusting nut so that clutch lever has 2 — 3 mm of play.



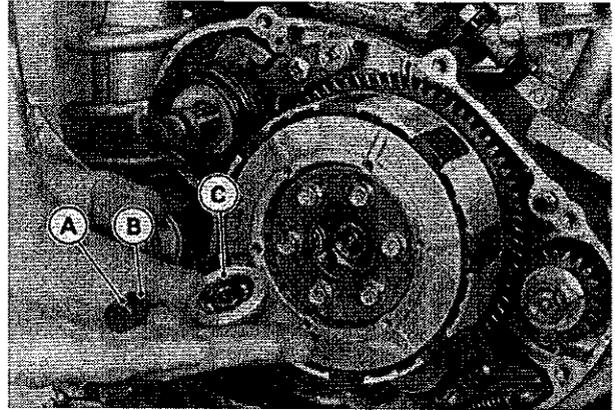
A. Adjusting Nut  
B. Locknut

- Tighten the nuts or locknut.
- Slide the dust cover back into place.
- After the adjustment is made, start the engine and check that the clutch does not slip and that it releases properly.

### Clutch Removal/Disassembly

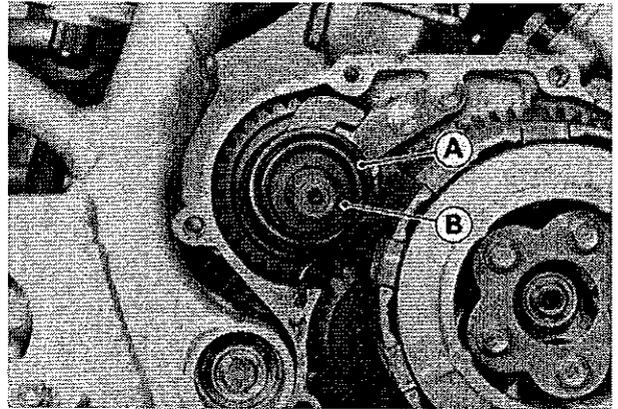
- Remove the right engine cover (see Right Engine Cover Removal).

- Remove the clutch pusher, flat washer (as required) and spring plate pusher.



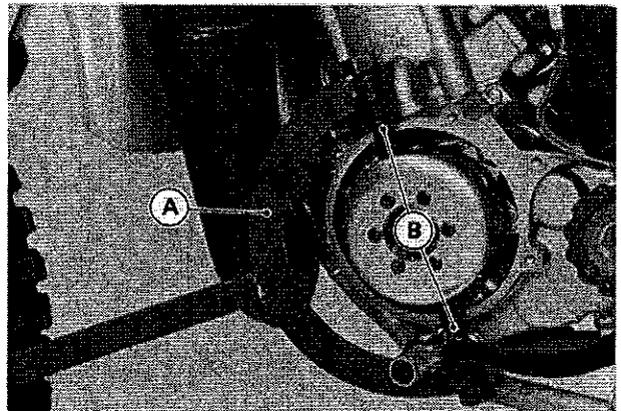
A. Clutch Pusher      C. Spring Plate Pusher  
B. Flat Washer (as required)

- Remove the kick spring guide.



A. Kick Spring      B. Spring Guide

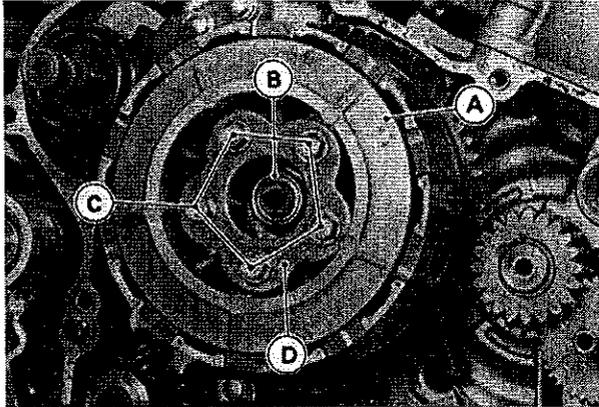
- Remove the magneto cover.
- Hold the magneto flywheel steady with rotor holder and adapter "A" (special tool).



A. Rotor Holder: 57001-1248  
B. Adapter "A": 57001-1108

## ENGINE RIGHT SIDE 5-9

- Remove the clutch hub bolt (KX60, KDX80) or nut (KX80).



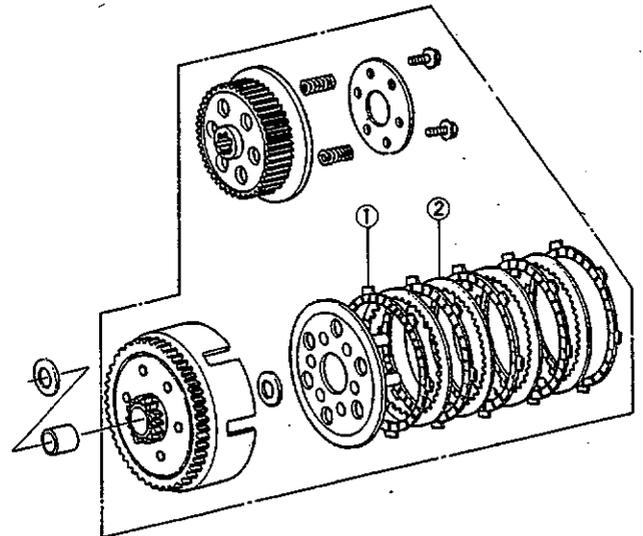
- A. Clutch Assembly
- B. Clutch Hub Bolt or Nut
- C. Clutch Spring Bolts
- D. Clutch Spring Holder

- Remove the clutch spring bolts, clutch spring holder, springs and clutch hub.
- Remove the friction plates, steel plates and clutch wheel.
- Remove the thrust washer and take out the clutch housing.
- Remove the sleeve and thrust washer.
- Remove the rotor holder and adapter "A" from the magneto flywheel.

### Clutch Installation Notes

- Installation is the reverse of removal.
- Apply molybdenum disulfide grease to the outside of the sleeve.
- Apply transmission oil to the inside of the clutch housing gear and kick starter driven gear.
- Install the thrust washer, sleeve, housing, thrust washer and clutch wheel in that order.

- Install the friction plates and steel plates, starting with a friction plate and alternating them; finishing with a friction plate.



- 1. Friction Plate
- 2. Steel Plate

### CAUTION

- If dry steel plates and friction plates are installed, apply transmission oil to the surfaces of each plate to avoid clutch plate seizure.

- Tighten the clutch hub bolt or nut to the specified torque.

### Tightening Torque:

Clutch hub bolt: 64 N-m (6.5 kg-m, 47 ft-lb)

Clutch hub nut: 78 N-m (8.0 kg-m, 58 ft-lb)

- Apply molybdenum disulfide grease to the clutch spring plate pusher.
- Tighten the clutch spring bolts to the specified torque.

### Tightening Torque

9.5 N-m (0.95 kg-m, 82 in-lb)

## 5-10 ENGINE RIGHT SIDE

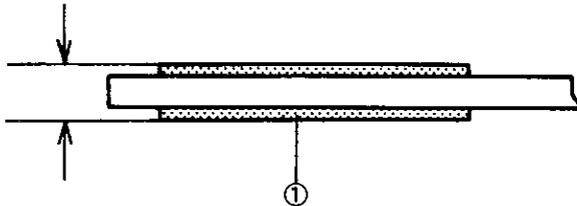
### *Friction Plate Wear, Damage Inspection*

- Visually inspect the friction plates to see if they show any signs of seizure, or uneven wear.
- ★If any plates show signs of damage, replace the friction plates and steel plates as a set.
- Measure the thickness of the friction plates with vernier calipers.
- ★If they have worn past the service limit, replace them with new ones.

### Friction Plate Thickness

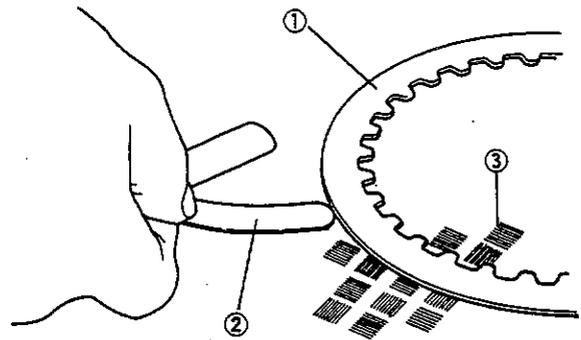
<b>Standard:</b>	<b>3.1 – 3.3 mm</b>
<b>Service Limit:</b>	<b>2.9 mm</b>

### Friction Plate Thickness Measurement



1. Friction Plate

### Friction and Steel Plate Warp Measurement



1. Friction Plate
2. Thickness Gauge
3. Surface Plate

### *Clutch Spring Free Length Measurement*

- Since the spring becomes shorter as it weakens, check its free length to determine its condition.
- ★If any of the springs is shorter than the service limit, it must be replaced.

### Clutch Spring Free Length

#### KX60:

<b>Standard:</b>	<b>26.6 mm</b>
<b>Service Limit:</b>	<b>25.3 mm</b>

#### KX80:

<b>Standard:</b>	<b>33.5 mm</b>
<b>Service Limit:</b>	<b>31.8 mm</b>

#### KDX80:

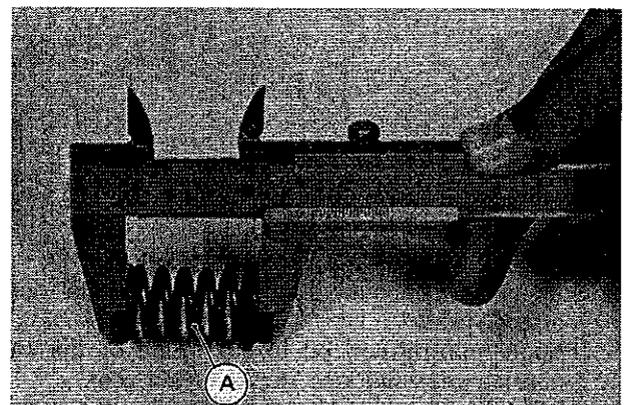
<b>Standard:</b>	<b>28.1 mm</b>
<b>Service Limit:</b>	<b>26.7 mm</b>

### *Friction and Steel Plate Warp Inspection*

- Place each friction plate or steel plate on a surface plate, and measure the gap between the surface plate and each friction plate or steel plate. The gap is the amount of friction or steel plate warp.
- ★If any plate is warped over the service limit, replace it with a new one.

### Friction and Steel Plate Warp

<b>Standard:</b>	<b>not more than 0.15 mm</b>
<b>Service Limit:</b>	<b>0.3 mm</b>



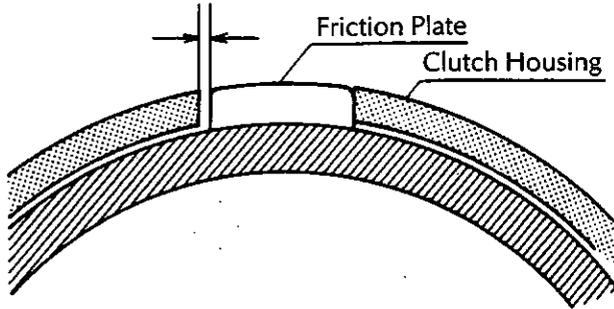
A. Clutch Spring

**Friction Plate/Clutch Housing Clearance**

- Measure the clearance between the tangs on the friction plate and the fingers of the clutch housing.
- ★ If this clearance is excessive, the clutch will be noisy.
- ★ If the clearance exceeds the service limit, replace the friction plates.

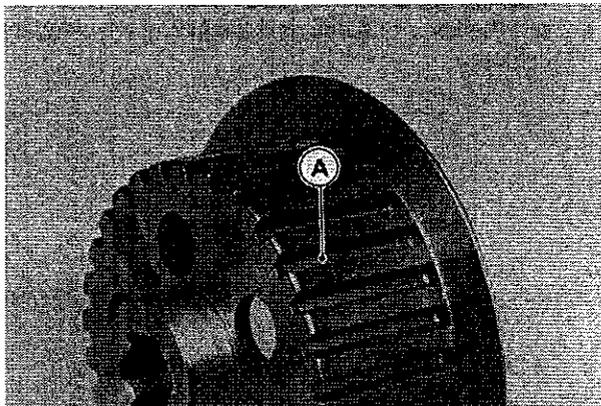
**Friction Plate/Clutch Housing Clearance**

**Standard:** 0.35 — 0.60 mm  
**Service Limit:** 0.9 mm



**Clutch Hub Spline Inspection**

- Visually inspect where the teeth on the steel plates wear against the splines of the clutch hub.
- ★ If there are notches worn into the splines, replace the clutch hub. Also, replace the steel plates if their teeth are damaged.



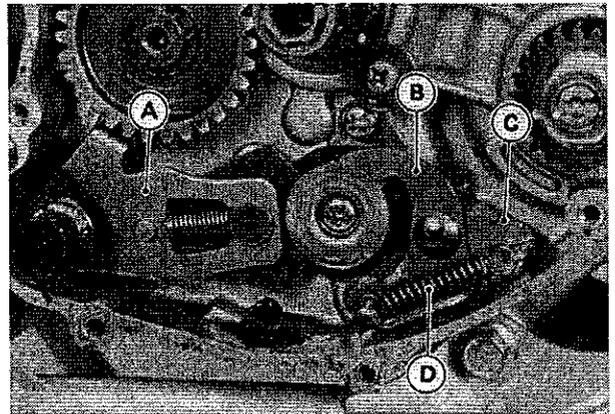
A. Clutch Hub Spline

**External Shift Mechanism**

**External Shift Mechanism Removal**

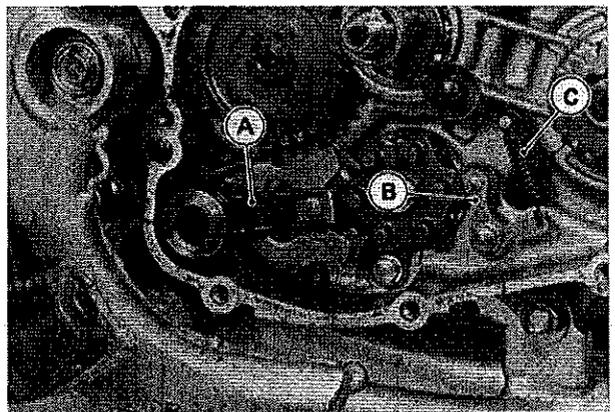
- Remove the following parts.
  - Shift Pedal
  - Magneto Cover
  - Right Engine Cover
  - Clutch Housing
- Pull out the shift shaft with the shift mechanism arm and arm spring, and remove the return spring.

**KX60, KDX80:**



A. External Shift Mechanism      C. Neutral Set Lever  
 B. Gear Set Lever                      D. Spring

**KX80:**



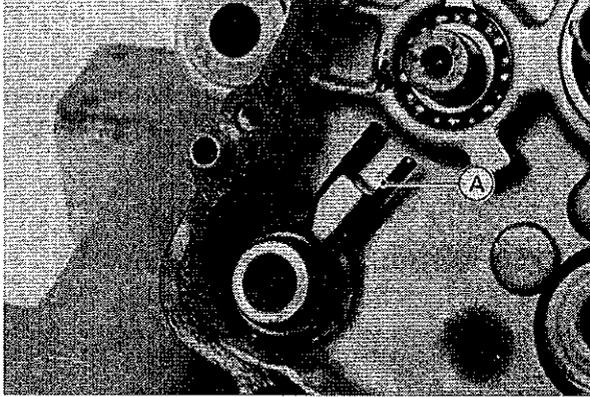
A. External Shift Mechanism      C. Spring  
 B. Neutral Set Lever

- Remove the gear set lever spring
- Remove the screw, and take off the neutral set lever and the gear set lever.

## 5-12 ENGINE RIGHT SIDE

### External Shift Mechanism Installation Notes

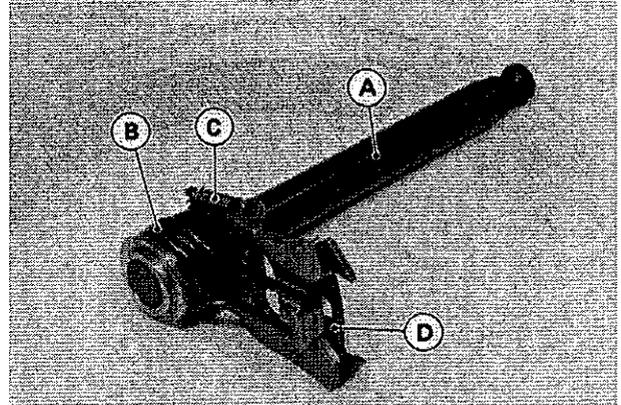
- Installation is the reverse of removal.
- For the KX60, KDX80 models; install the return spring so that the large round edge side faces in.



A. Return Spring

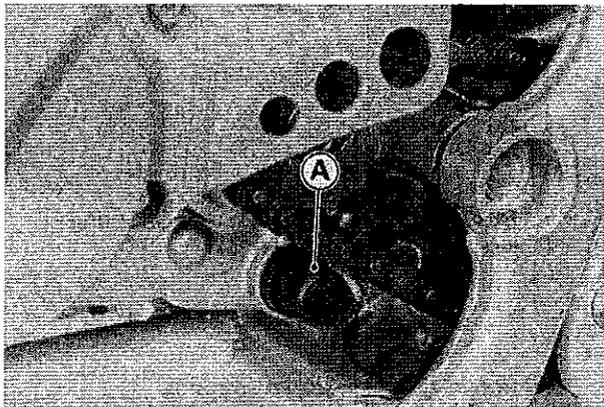
### External Shift Mechanism Inspection

- Examine the shift shaft for any damage.
- Check the shift shaft for bending or damage to the splines.
- ☆ If the shaft is bent, straighten or replace it. If the splines are damaged, replace the external shift mechanism.
- Check the return spring and arm spring for cracks or distortion.
- ☆ If the springs are damaged in any way, replace them.
- Check the shift mechanism arm for distortion.
- ☆ If the shift mechanism arm is damaged in any way, replace the external shift mechanism.



A. Shift Shaft  
B. Return Spring  
C. Arm Spring  
D. Shift Mechanism Arm

- Insert the shift shaft into the crankcase using the shift shaft oil seal guide (special tool) on the oil seal in the left crankcase half to protect the seal.
- Before installing the shift shaft, apply high temperature grease to the oil seal lips.



A. Shift Shaft Oil Seal Guide: 57001-264

- For the KX80; check that the return spring pin is not loose.
- ☆ If it is loose, unscrew it, apply a non-permanent locking agent to the threads, and tighten it to the specified torque.

### Tightening Torque:

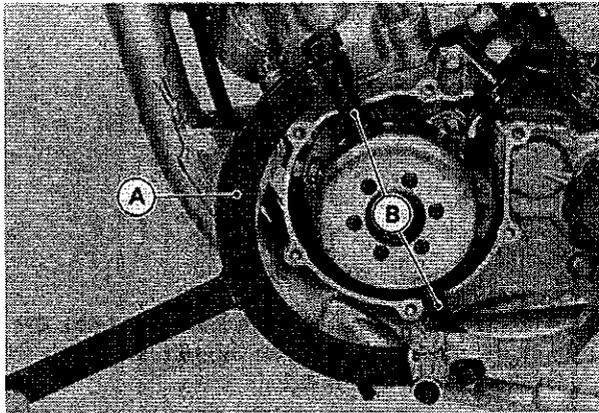
**20 N-m (2.0 kg-m, 14.5 ft-lb)**

- Check the gear set lever, neutral set lever, and their spring for cracks or distortion.
- ☆ If the lever or spring is damaged in any way, replace them.

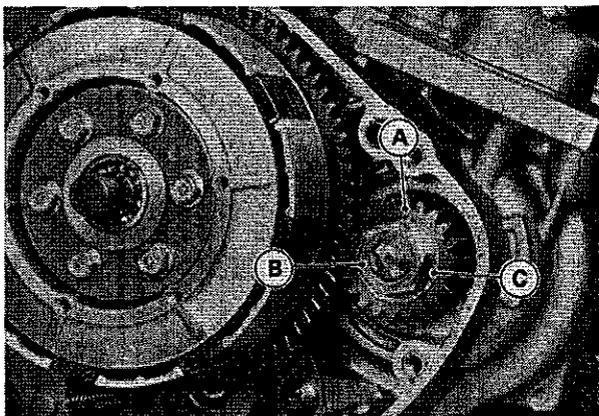
.....  
**Primary Gear**  
 .....

**Primary Gear Removal**

- Remove the right engine cover (see Right Engine Cover Removal).
- For the KX60, KDX80, do the following.
  - Flatten the portion of the toothed washer which is bent over the primary gear nut.
  - Remove the magneto cover.
  - Using the rotor and adapter "A" (special tool) to prevent the clutch and primary gear from rotating, loosen the primary gear nut.



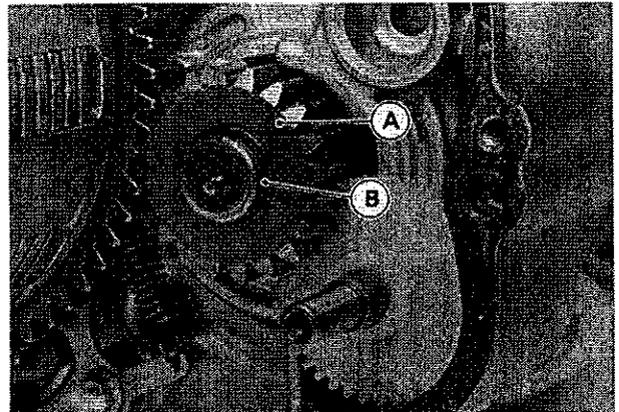
A. Rotor Holder : 57001-1248  
 B. Adapter "A" : 57001-1108



A. Primary Gear                      C. Toothed Washer  
 B. Nut

- Remove the primary gear nut, toothed washer, primary gear and woodruff key.
- Remove the rotor holder and adapter "A" from the magneto flywheel.

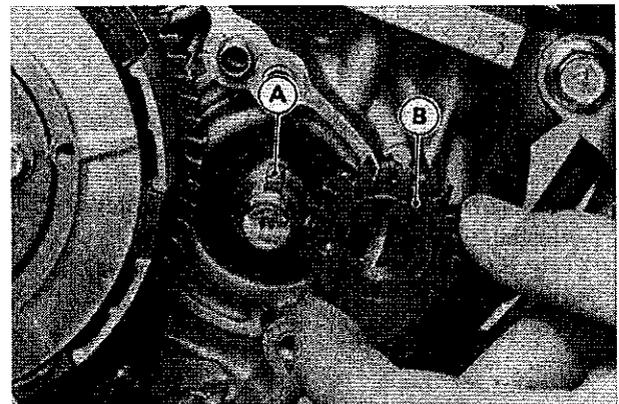
- For the KX80; remove the primary gear circlip and take off the primary gear.



A. Primary Gear                      B. Circlip

**Primary Gear Installation Notes**

- Installation is the reverse of removal.
- For the KX60, KDX80; do the following.
  - Fit the woodruff key on the primary gear groove securely in the crankshaft.
  - Install the primary gear by hand with the hole for the facing outward.



A. Woodruff Key                      B. Primary Gear

- Tighten the primary gear nut to the specified torque.

**Tightening Torque:**

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

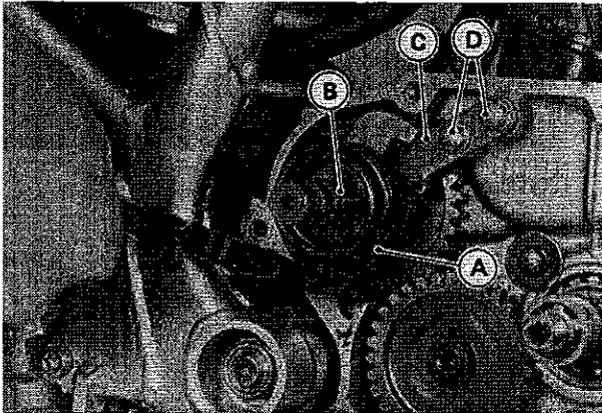
- Bend back part of the toothed washer against the side of the primary gear nut.
- For the KX80; put the primary gear on the crankshaft with the cut side facing out, and install the circlip.

## 5-14 ENGINE RIGHT SIDE

### Kick Starter

#### Kick Shaft Assembly Removal

- Remove the following parts.  
Right Engine Cover  
Clutch Housing
- Pull the end of the kick spring out of the hole in the crankcase.



A. Kick Spring                      C. Ratchet Guide  
B. Kickstarter Assembly      D. Bolts (Screws)

- Remove the ratchet guide and bolts (screws).
- Remove the kickstarter assembly.

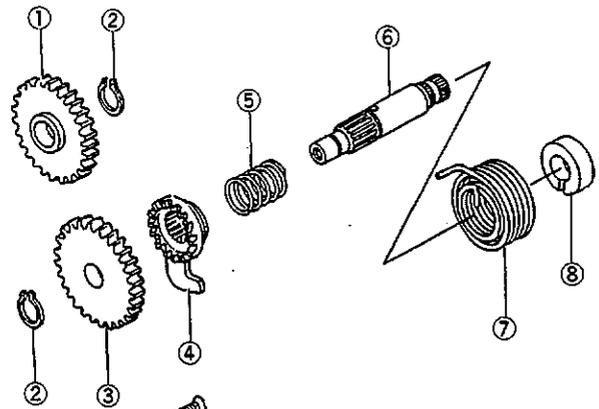
#### Kick Shaft Assembly Installation Notes

- Installation is the reverse of removal.
- For the KX60, KDX80; apply a non-permanent locking agent to the threads of the ratchet guide screws.

#### Kickstarter Assembly

##### Disassembly/Assembly Notes

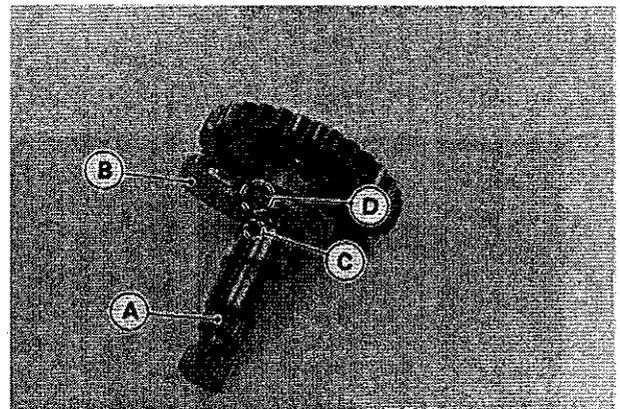
- The kickstarter assembly consists of the following parts.
- Check the kickstarter assembly parts for damage. Any damaged parts should be replaced with new ones.



1. Idle Gear                      5. Spring  
2. Circlip                        6. Kick Shaft  
3. Kick Gear                    7. Kick Spring  
4. Ratchet Gear                8. Spring Guide

### CAUTION

- When assembling the ratchet gear onto the kick shaft, align the notch on the ratchet gear with the hole on the kick shaft.

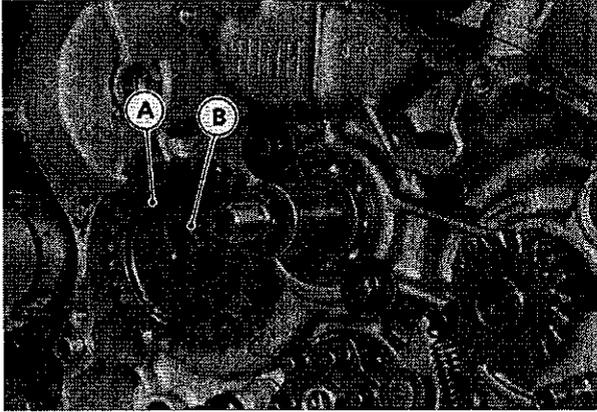


A. Kick Shaft                      C. Hole  
B. Ratchet Gear                D. Notch

- Apply molybdenum disulfide grease to the inside of the kick gear and ratchet gear.
- Replace the circlips that were removed with new ones.

***Kickstarter Idle Gear Removal Notes***

- Remove the right engine cover and clutch housing before idle gear removal (see Right Engine Cover Removal and Clutch Removal).
- Remove the idle gear circlip and pull off the idle gear.



A. Idle Gear

B. Circlip

***Kick Starter Idle Gear Installation Notes***

- Installation is the reverse of removal (see Right Engine Cover Installation Notes and Clutch Installation Notes).
- Apply molybdenum disulfide grease to the inside of the idle gear.
- Replace the circlip that was removed with a new one.



# Engine Removal/Installation

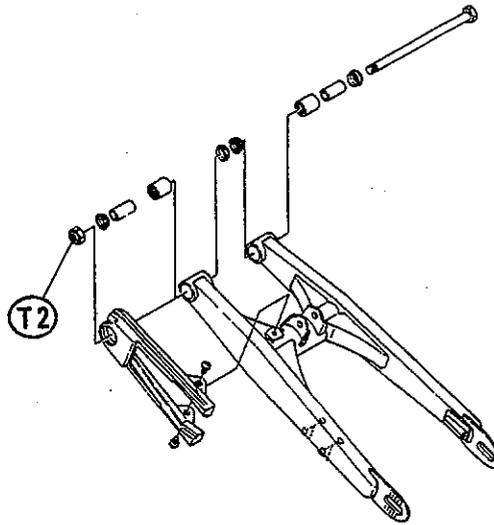
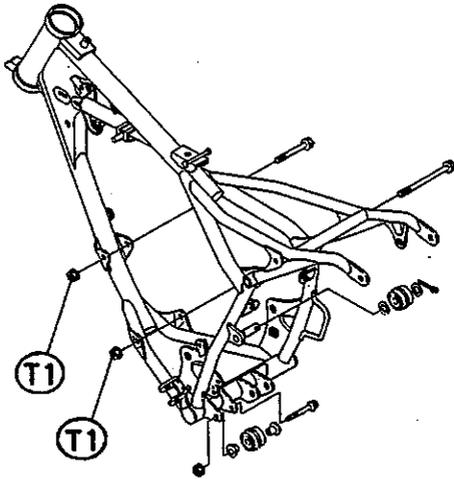
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Engine Removal .....	6-3
Engine Installation Notes .....	6-3

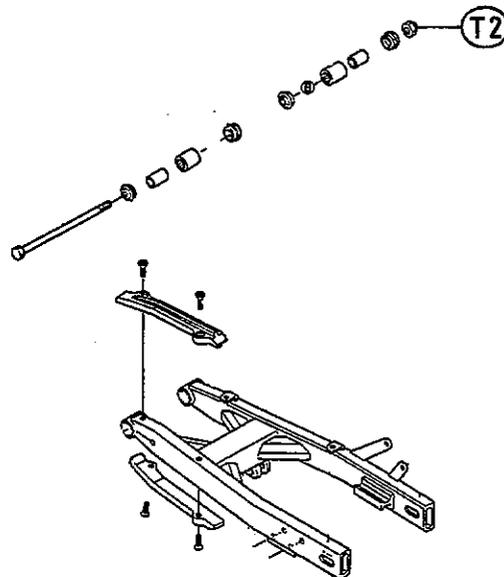
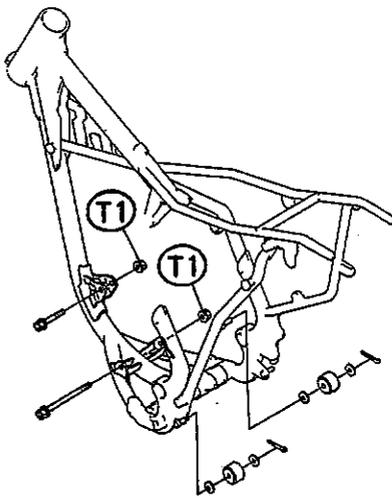
## 6-2 ENGINE REMOVAL/INSTALLATION

### Exploded View

KX60, KDX80:



KX80:



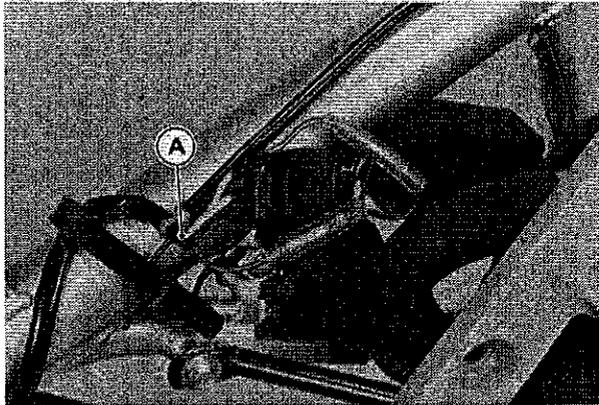
T1: 25 N-m (2.5 kg-m, 18.0 ft-lb)  
T2: 69 N-m (7.0 kg-m, 51 ft-lb)

## ENGINE REMOVAL/INSTALLATION 6-3

### Engine Removal/Installation

#### Engine Removal

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



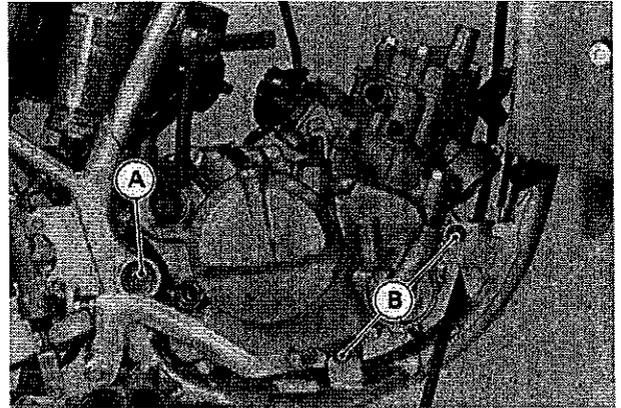
A. Magneto Lead

- Place a stand (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. Swing Arm Pivot Shaft  
B. Engine Mounting Bolts

#### Engine Installation Notes

- Engine installation is the reverse of removal.
- Tighten the nuts to the specified torque.

#### Tightening Torque :

##### Engine Mounting Nut :

25 N-m (2.5 kg-m, 18 ft-lb)

##### Pivot Shaft Nut :

69 N-m (7.0 kg-m, 51 ft-lb)

- To route the leads, cables and hoses, refer to the General Information chapter.
- To install parts removed, refer to the appropriate chapters.
- Fill the engine with coolant (see Coolant Change in the Cooling System chapter).
- Fill the engine with transmission oil (see Transmission Oil Change in the Engine Bottom End/Transmission chapter).
- Adjust the following parts:
  - Throttle Cable
  - Clutch Cable
  - Drive Chain
  - Rear Brake



# Engine Bottom End/Transmission

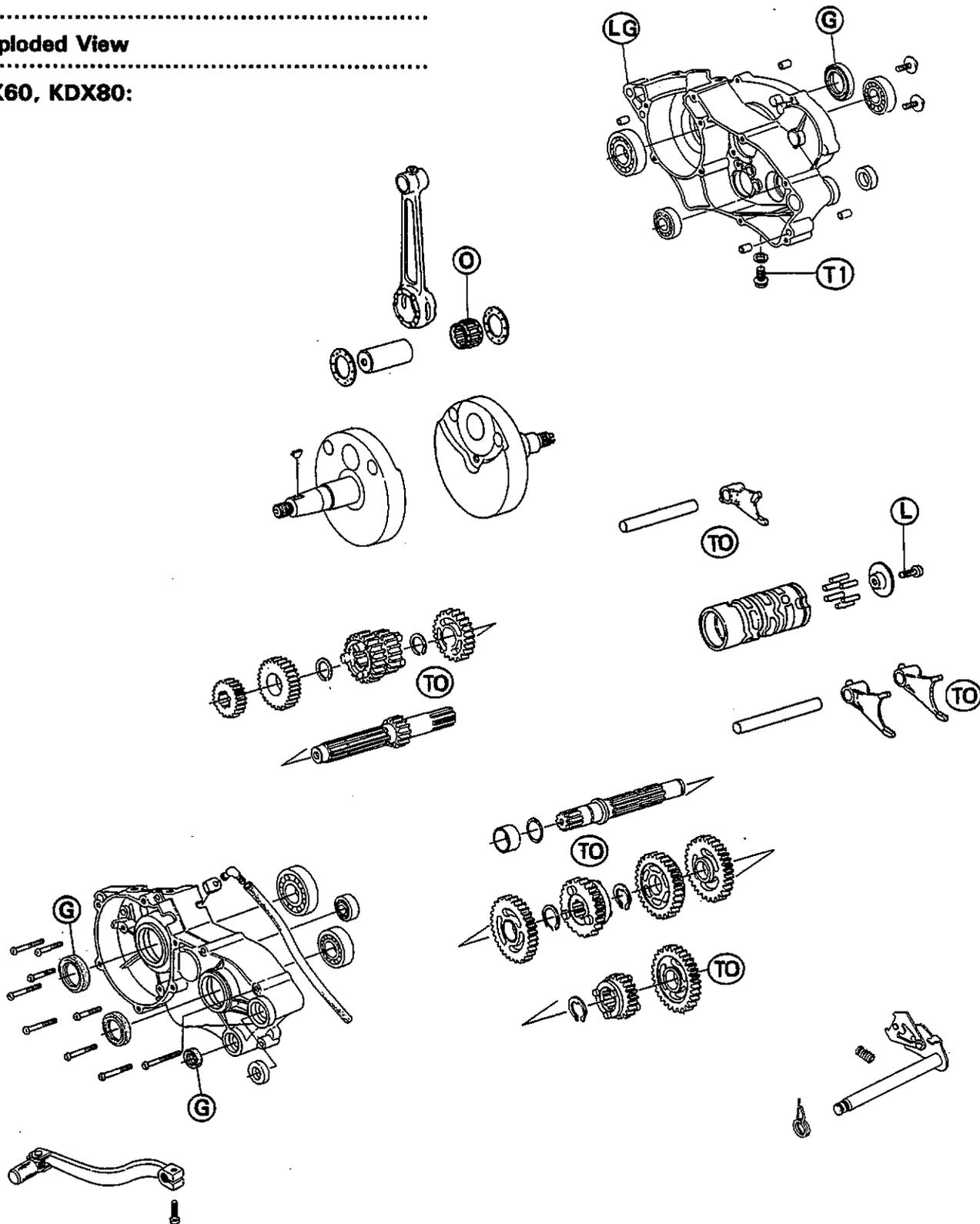
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## 7-2 ENGINE BOTTOM END/TRANSMISSION

### Exploded View

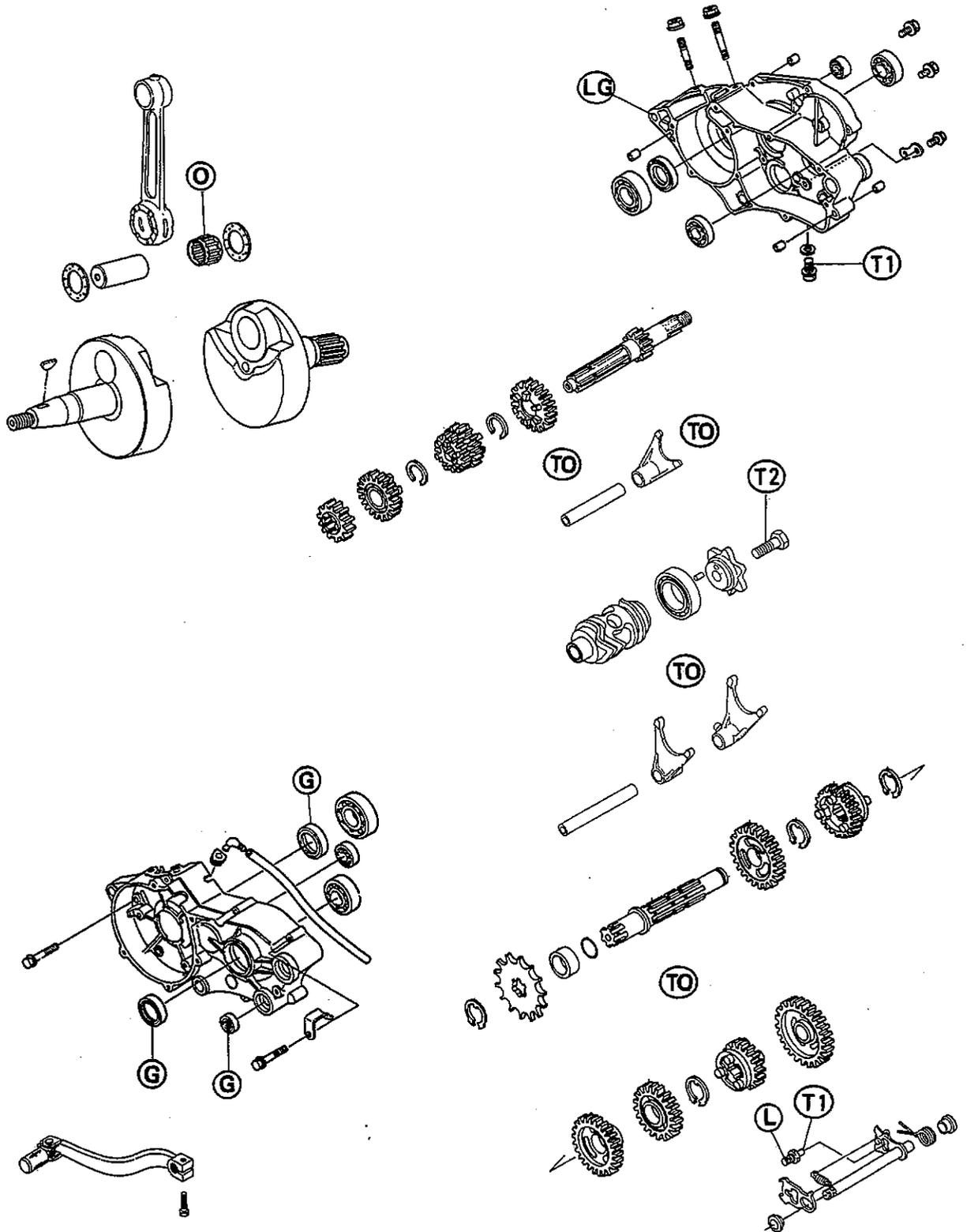
KX60, KDX80:



- G** : Apply high temperature grease.
- O** : Apply 2-stroke oil.
- TO** : Apply transmission oil.
- LG** : Apply liquid gasket to the mating surface of the right and left crankcase.
- L** : Apply a non-permanent locking agent to the threads.

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

KX80:



- G: Apply high temperature grease
- O: Apply 2-stroke oil.
- TO : Apply transmission oil.
- LG : Apply liquid gasket to the mating surface of the right and left crankcase halves.
- L : Apply a non-permanent locking agent to the threads.

- T 1 : 20 N-m (2.0 kg-m, 14.5 ft-lb)
- T 2 : 23 N-m (2.3 kg-m, 17 ft-lb)

## 7-4 ENGINE BOTTOM END/TRANSMISSION

### Specifications

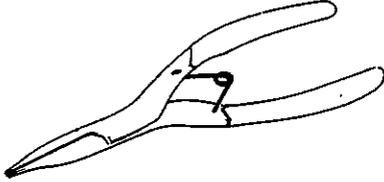
Item	Standard	Service Limit
<b>Transmission Oil:</b>		
Grade	SE class	---
Viscosity	SAE 10W 30 or 10W 40	---
Amount : KX60	0.6 L	---
KX80	0.7 L	---
KDX80	0.55 L	---
<b>Crankshaft, Connecting Rod:</b>		
Connecting rod:		
Bend and twist	not more than 0.03mm/ 100mm	0.20mm/100mm
Big end radial clearance:		
KX60	0.021—0.033 mm	0.08 mm
KX80,KDX80	0.023—0.035 mm	0.08 mm
Big end side clearance:	0.35—0.45 mm	0.7 mm
Crankshaft runout: KX60, KDX80	not more than 0.03 mm	0.10 mm
KX80	not more than 0.03 mm	0.05 mm
<b>Transmission:</b>		
Gear backlash	0.02—0.19 mm	0.26 mm
Shift fork finger thickness	3.9—4.0 mm	3.8 mm
Gear shift fork groove width	4.05—4.15 mm	4.25 mm
Shift fork guide pin diameter	5.9—6.0 mm	5.85 mm
Shift drum groove width	6.05—6.20 mm	6.25 mm

## ENGINE BOTTOM END/TRANSMISSION 7-5

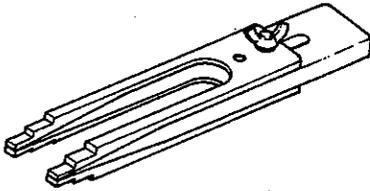
### Special Tools

Along with common hand tools and precision instruments, specialized tools are required for complete crankshaft/transmission servicing.

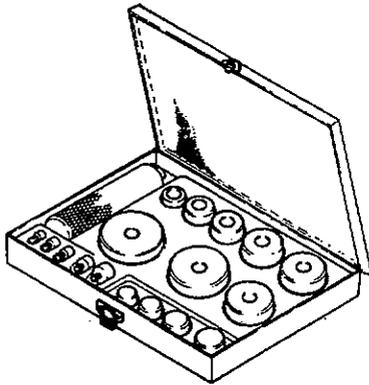
**Circlip Pliers: 57001-144**



**Crankshaft Jig: 57001-1174**



**Bearing Driver Set: 57001-1129**



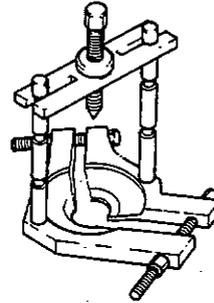
**Kick Shaft Oil Seal Guide: 57001-263**



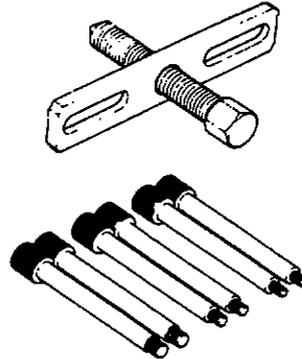
**Shift Shaft Oil Seal Guide: 57001-264**



**Bearing Puller: 57001-158**



**Crankcase Splitting Tool Set: 57001-1098**



**Adapter: 57001-136**



## 7-6 ENGINE BOTTOM END/TRANSMISSION

### Transmission Oil

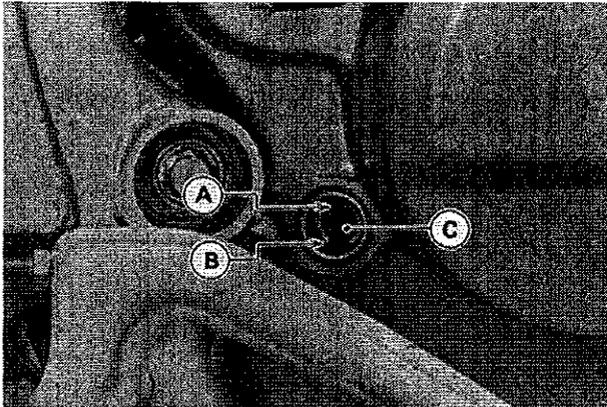
In order for the transmission and clutch to function properly, always maintain the transmission oil at the proper level and change the oil periodically.

#### WARNING

Motorcycle operation with insufficient, deteriorated, or contaminated transmission oil will cause accelerated wear and may result in transmission seizure, accident, and injury.

#### Oil Level Inspection

- Situate the motorcycle so that it is perpendicular to the ground.
- If the motorcycle has just been used, wait several minutes until the oil settles.
- Check that the oil level comes up between the upper and lower levels through the oil level gauge on the right engine cover.



A. Upper Level      C. Oil Level Gauge  
B. Lower Level

- ★ If the oil level is too high, remove the excess oil using a syringe or some other suitable device.
- ★ If the oil level is too low, add the correct amount of oil through the oil filler opening. Use the same type and make of oil that is already in the engine.

#### NOTE

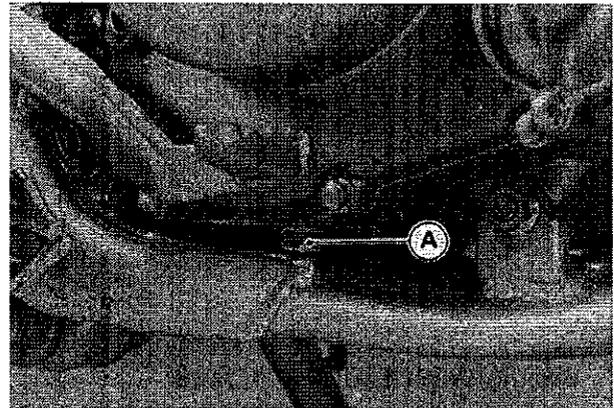
If the transmission oil type and make are unknown, use any brand of the specified oil to top up the level in preference to running the engine with the oil level low. Then at your earliest convenience, change the oil completely.

#### Oil Change

- Warm up the engine thoroughly so that the oil will pick up any sediment and drain easily. Then stop the engine.
- Place an oil pan beneath the engine.
- Remove the transmission oil drain plug on the bottom of the engine, and let the oil drain completely.

#### NOTE

Hold the motorcycle upright so that the oil may drain completely.



A. Transmission Oil Drain Plug

- Check the gasket at the drain plug for damage.
- ★ Replace the gasket with a new one if it is damaged.
- After the oil has completely drained out, install the drain plug with the gasket, and tighten it to the specified torque.

#### Tightening Torque:

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

- Fill the engine with a good quality motor oil specified in the table.
- Check the oil level.

#### Transmission Oil

Grade: SE class

Viscosity: SAE 10W30 or 10W40

Amount: KX60: 0.6 L

KX80: 0.7 L

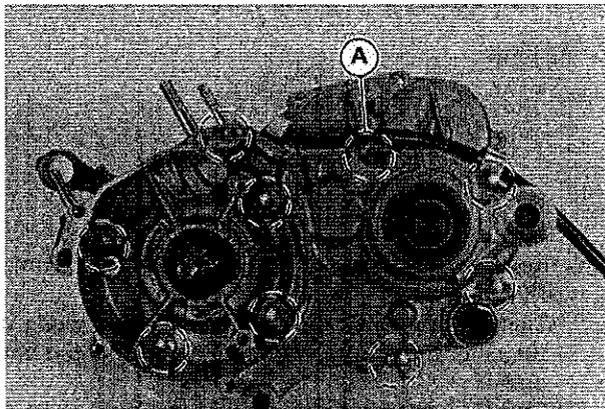
KDX80: 0.55 L

.....  
**Crankcase Splitting**  
 .....

**Crankcase Splitting**

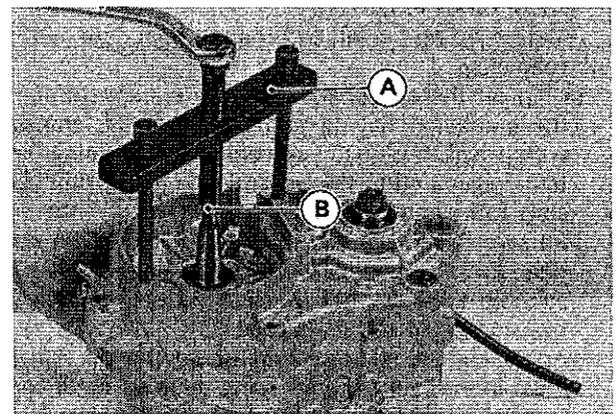
- Remove the engine (see the Engine Removal/Installation chapter).
- Set the engine on a clean surface while parts are being removed.
- Remove the following parts from the engine:
  - Magneto Cover
  - Output Shaft Sleeve and O-ring
  - Cylinder Head
  - Cylinder
  - Piston
  - Right Engine Cover
  - Clutch
  - Primary Gear
  - Kickstarter Assembly
  - Kickstarter Idle Gear
  - Gear Set and Neutral Set Levers
  - Shift Drum Guide
  - Magneto Flywheel and Stator

- Remove the crankcase bolts or screws.



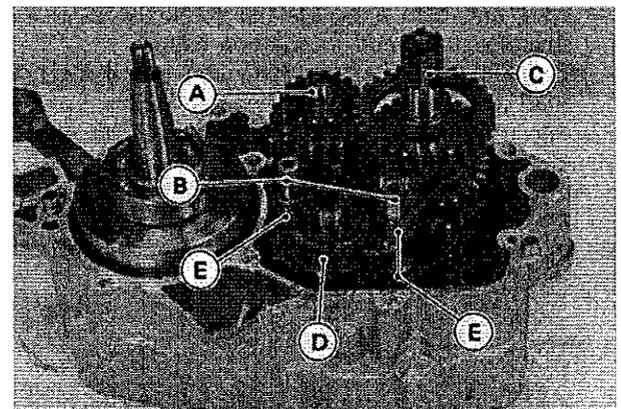
A. Crankcase Bolts (KX80) or Screws (KX60, KDX80)

- 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

- Tighten the bolt on the crankcase splitting tool to split the crankcase halves.
- Once the crankcase is split, remove the crankcase splitting tool, and lift off the left crankcase.
- Remove the shift rods, shift forks, shift drum, and output and drive shaft assemblies.



A. Drive Shaft                      D. Shift Drum  
 B. Shift Rods                      E. Shift Forks  
 C. Output Shaft

- Remove the breather hose from the left crankcase half.
- Remove the crankshaft from the right crankcase half using a press.

## 7-8 ENGINE BOTTOM END/TRANSMISSION

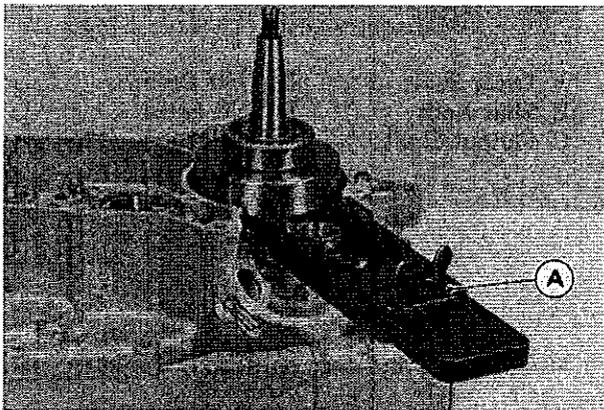
### Crankcase Assembly

- Before fitting the left case on the right case, note the following.
- Chip off the old gasket from the mating surfaces of the crankcase halves, and clean off the crankcase with a high flash-point solvent. After cleaning, apply transmission oil to the transmission gears, shift drum, shift forks and so on.
- Be sure to replace any oil seal removed with a new one. Press in the new oil seal using a press and suitable tools so that the seal surface is flush with the surface of the crankcase.
- Apply high temperature grease to the oil seal lips.
- Press in the ball bearings using the bearing driver set (special tool: 57001-1129) until the bearing is bottomed.

### NOTE

- Do not remove the bearings unless it is necessary. Removal may damage them.
- For the KX80; install the bearings for the crankshaft in the right and left crankcase so that their sealed sides face toward the oil seal side.

- ☆ If the crankshaft bearings stay on the crankshaft when splitting the crankcase, remove the bearings from the crankshaft and reinstall them in the crankcase, and then assemble the crankcase (see Crankshaft Removal and Installation Notes).
- Turn the crankshaft to BDC, and install the crankshaft jig (special tool) between the flywheels opposite the connecting rod big end to protect flywheel alignment as shown.
- If the crankshaft has been removed from the crankcase, install the crankshaft jig (special tool) between the crankshaft flywheels before pressing the crankshaft into the right crankcase half.

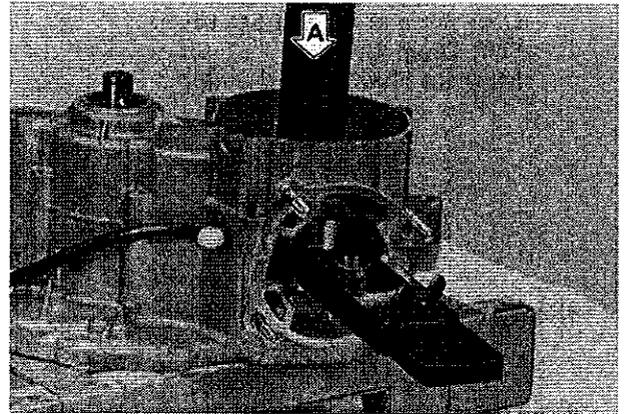


A. Crankshaft Jig: 57001-1174

- Check to see that the crankcase knock pins are in place on the right crankcase half. If any of them has been removed, replace it with a new one.
- Apply liquid gasket to the mating surface of the left crankcase half.
- Using a suitable tool on the left crankcase to press around the hole for the crankshaft, fit the crankcase halves together with a press on the tool.

### NOTE

- Constantly check the alignment of the two crankcase halves, and the position of the transmission shafts, and shift drum. The front and rear of the crankcase must be pushed together evenly.



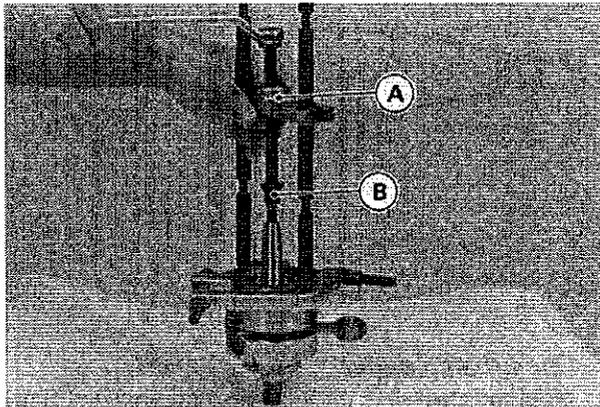
A. Press

- Remove the crankshaft jig (special tool) from the flywheels.
- Tighten the crankcase bolts or screws starting with the ones around the crankshaft, and then the farther ones.
- Check to see that the crankshaft, drive shaft, and output shaft all turn freely (in the neutral position).
- ☆ If the crankshaft will not turn, probably the crankshaft is not centered; tap the appropriate end of the crankshaft with a mallet to reposition it.
- Spinning the output shaft, shift the transmission through all the gears to make certain there is no binding and that all the gears shift properly.
- Install the parts removed in the reverse order of removal, and refer to the appropriate chapters.
- Replace the O-ring on the output shaft with a new one.

.....  
**Crankshaft, Connecting Rod**  
 .....

**Crankshaft Removal**

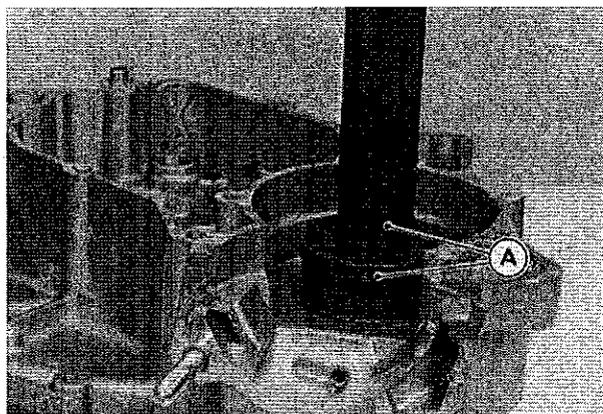
- Split the crankcase (see Crankcase Splitting).
- Remove the transmission shafts (see Transmission Shaft Removal).
- Using a press remove the crankshaft from the right crankcase.
- If the bearings stay on the crankshaft when splitting the crankcase or removing the crankshaft from the right crankcase, remove the bearings from the crankshaft with a bearing puller and adapter (special tools).



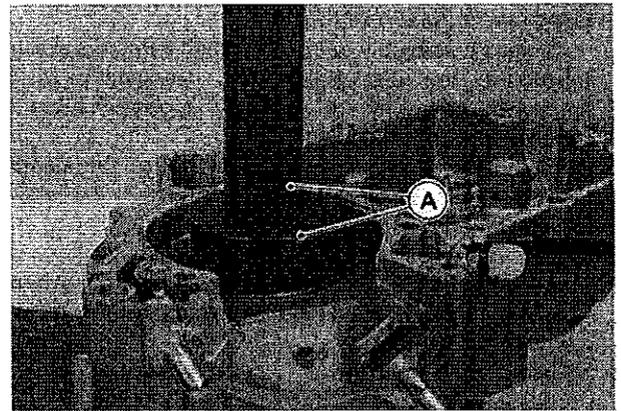
A. Bearing Puller: 57001-158  
 B. Adapter: 57001-136

**Crankshaft Installation Notes**

- Installation is the reverse of removal (see Transmission Shaft Installation Notes and Crankcase Assembly).
- When installing the crankshaft bearings, apply high temperature grease to the outer sides of the bearings, and then press them into the crankcase using the bearing driver set (special tool) until the bearing bottoms against the step.

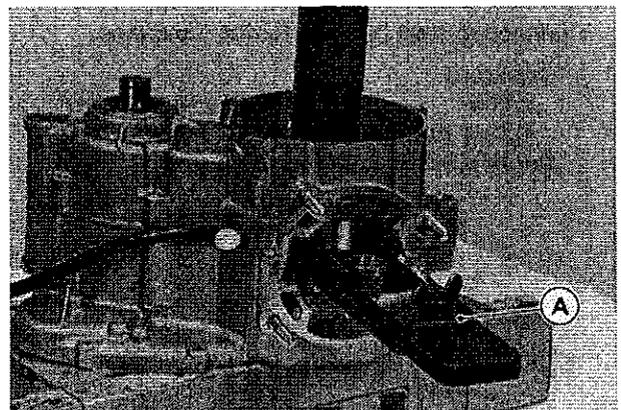


A. Bearing Driver Set: 57001-1129



A. Bearing Driver Set: 57001-1129

- Insert the crankshaft jig (special tool) between the crankshaft flywheels opposite the connecting rod big end to protect flywheel alignment as shown, and press the crankshaft into the right crankcase.
- When pressing, position the jig in the crankcase opening so the jig does not hit the crankcase.



A. Crankshaft Jig: 57001-1174

- Apply 2-stroke oil to the connecting rod big end bearing.

**Crankshaft Disassembly Note**

Since assembly of the crankshaft demands exacting tolerances, the disassembly and reassembly of the crankshaft can only be done by a shop having the necessary tools and equipment.

- If it should be necessary to disassemble the crankshaft, use a press to remove the crankpin.

## 7-10 ENGINE BOTTOM END/TRANSMISSION

### *Crankshaft Assembly Notes*

Since the assembly of the crankshaft demands exacting tolerances, the disassembly and reassembly of the crankshaft can only be done by a shop having the necessary tools and equipment.

- Reassemble the crankshaft according to the standard tolerances in Specifications.
- Connecting Rod Bend, Twist
- Connecting rod big end radial clearance.
- Cold-fitting tolerance between crankpin and flywheels.
- Side clearance between the connecting rod big end and one of the flywheels.
- Crankshaft runout.

### *Connecting Rod Big End Radial Clearance*

- Set the crankshaft in a flywheel alignment jig or on V blocks, and place a dial gauge against the connecting rod big end.
- Push the connecting rod first towards the gauge and then in the opposite direction. The difference between the two gauge readings is the radial clearance.
- ★ If the radial clearance exceeds the service limit, the crankshaft should be either replaced or disassembled and the crankpin, needle bearing, and connecting rod big end examined for wear.

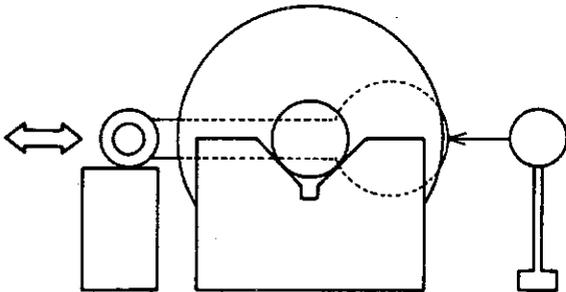
### **Connecting Rod Big End Radial Clearance**

**Standard:**

**KX60** 0.021 – 0.033 mm

**KX80, KDX80** 0.023 – 0.035 mm

**Service Limit:** 0.08 mm



### *Big End Seizure*

- ★ In case of serious seizure with damaged flywheels, the crankshaft must be replaced.
- ★ In case of less serious damage, disassemble the crankshaft and replace the crankpin, needle bearing, side washers, and connecting rod.

### *Connecting Rod Big End Side Clearance*

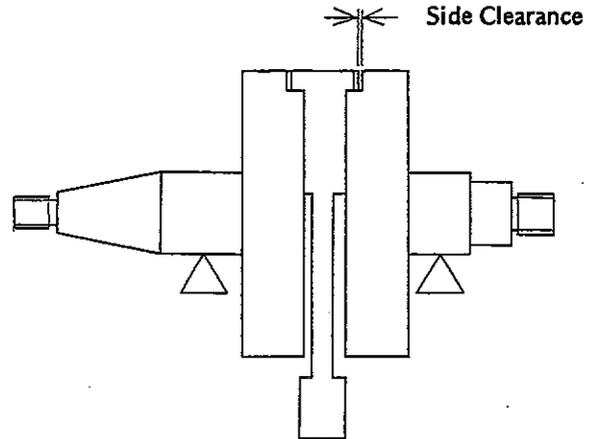
- Measure the side clearance of the connecting rod with a thickness gauge.
- ★ If the clearance exceeds the service limit, replace the crankshaft.

### **Connecting Rod Big End Side Clearance**

**Standard:** 0.35 – 0.45 mm

**Service Limit:** 0.7 mm

### **Side Clearance**



### *Crankshaft Runout*

- Set the crankshaft on V blocks, and place a dial gauge against the points indicated.
- Turn the crankshaft slowly. The maximum difference in gauge readings is the crankshaft runout.

### **Crankshaft Runout**

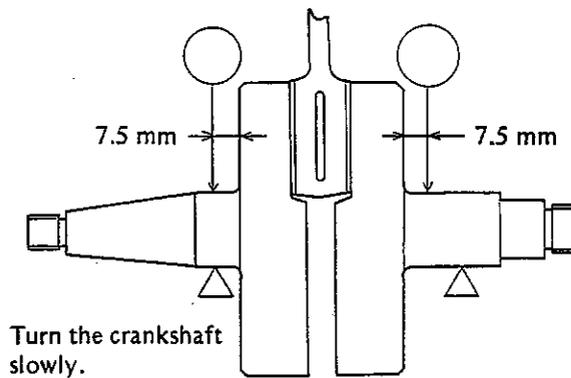
**Standard:** Not more than 0.03 mm

**Service Limit:**

**KX60, KDX80** 0.10 mm

**KX80** 0.05 mm

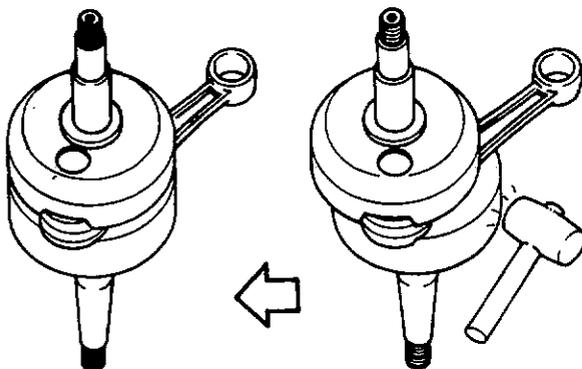
**Crankshaft Runout**



**Crankshaft Alignment**

- ★ If the runout at either point exceeds the service limit, align the flywheels so that the runout falls within the service limit.
- In the case of horizontal misalignment, which is the most common, strike the projecting rim of the flywheel with a plastic, soft lead, or brass hammer as indicated in the figure.
- Recheck the runout with a dial gauge, repeating the process until the runout falls within the service limit.
- Vertical misalignment is corrected either by driving a wedge in between the flywheels or by squeezing the flywheel rims in a vise, depending on the nature of the misalignment. In cases of both horizontal and vertical misalignment, correct the horizontal misalignment first.
- ★ If flywheel misalignment cannot be corrected by the above method, replace the crankpin or the crankshaft itself.

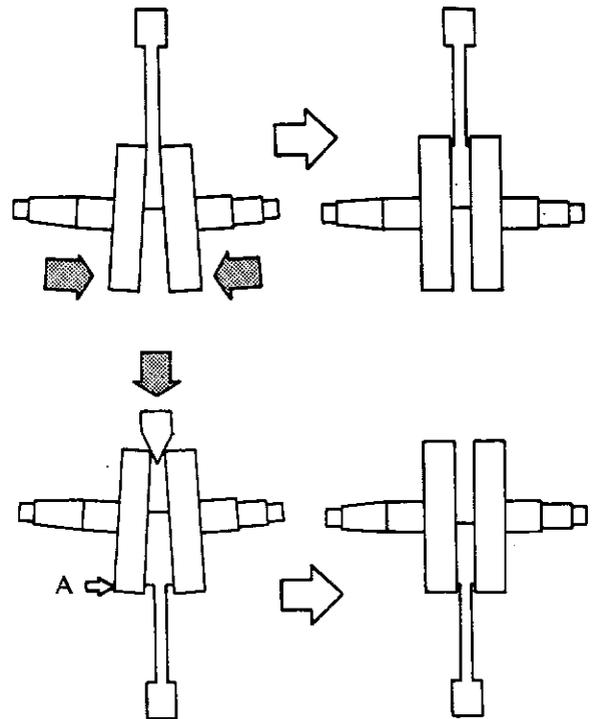
**Horizontal Misalignment**



**CAUTION**

- Don't hammer the flywheel at point "A".

**Vertical Misalignment**

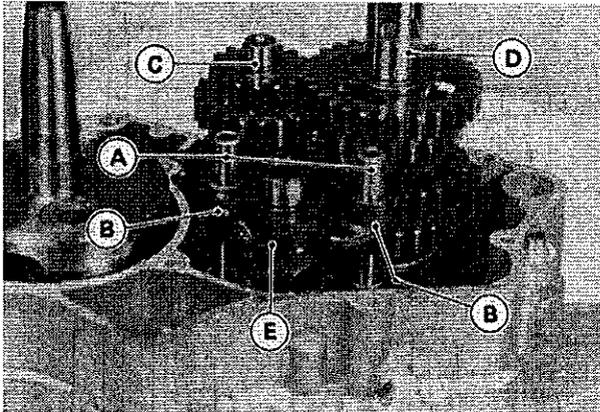


## 7-12 ENGINE BOTTOM END/TRANSMISSION

### Transmission

#### Transmission Shaft Removal

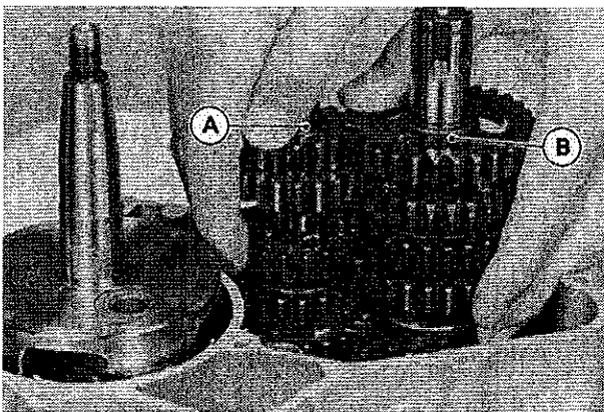
- Split the crankcase (see Crankcase Splitting).
- Pull off the shift rod, and disengage the shift fork guide pins from the shift drum grooves.
- Remove the shift drum.
- Remove the shift forks from the transmission gears.
- Take out the drive shaft and output shaft together, with their gears meshed.



A. Shift Rods  
B. Shift Forks  
C. Drive Shaft  
D. Output Shaft  
E. Shift Drum

#### Transmission Shaft Installation Notes

- Installation is the reverse of removal.
- Hold the drive shaft and output shaft together, with their gears meshed, and fit them into the right crankcase half.



A. Drive Shaft  
B. Output Shaft

- To install the shift forks and shift drum, see the Shift Drum and Fork Installation Notes.

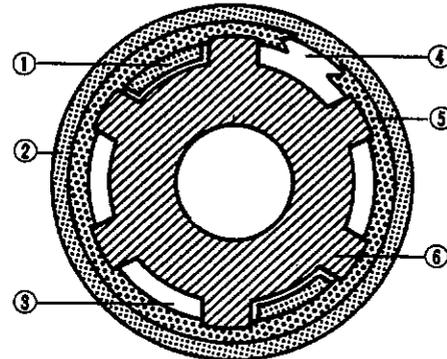
#### Transmission Shaft Disassembly Notes

- Using circlip pliers (special tool: 57001-144) to remove the circlips, disassemble the transmission shaft.

#### Transmission Shaft Assembly Notes

- Assembly is the reverse of removal.
- Apply transmission oil liberally to the transmission shaft, gears and bearings.
- Replace any circlips that were removed with new ones.
- Always install circlips so that the opening is aligned with a spline groove, and install toothed washers so that the teeth are not aligned with the circlip opening. To install a circlip without damage, first fit the circlip onto the shaft expanding it just enough to install it, and then use a suitable gear to push the circlip into place.

#### Circlip and Toothed Washer Installation



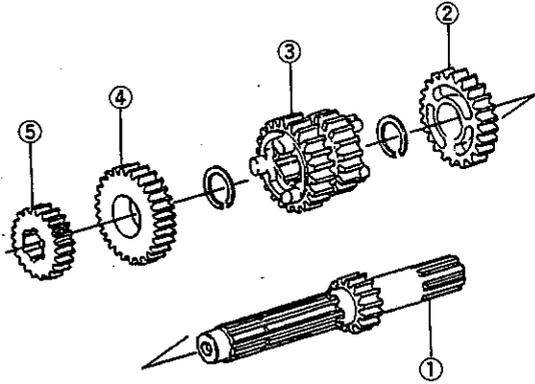
1. Teeth of Toothed Washer
2. Toothed Washer
3. Groove of Shaft
4. Opening of Circlip
5. Circlip
6. Shaft

- The drive shaft gears can be identified by size; the smallest diameter gear is 1st gear, and the largest is 6th. 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**

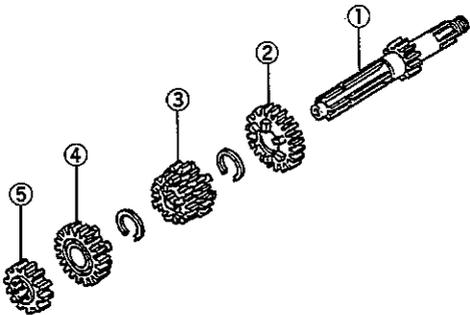
**KX60, KDX80:**

1. 1st gear (13T; part of drive shaft)
2. 6th gear (24T; plain side faces right)
3. 3rd/4th gear (18T/21T; larger gear faces left)
4. 5th gear (24T; plain side faces left)
5. 2nd gear (16T; either side may face in)



**KX80:**

1. 1st gear (13T; part of drive shaft)
2. 6th gear (23T; plain side faces right)
3. 3rd/4th gear (18T/20T; larger gear faces right)
4. 5th gear (22T; plain side faces left)
5. 2nd gear (16T; either side may face in  
Late model: chamfered side faces right)

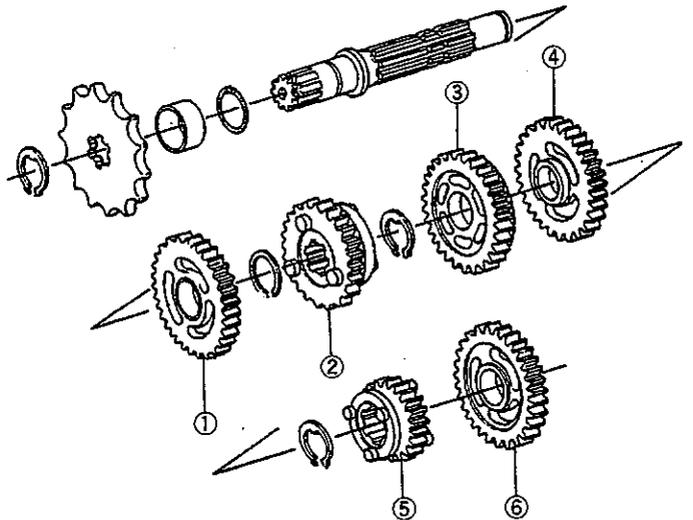


•The output shaft gears can be identified by size; the largest diameter gear is 1st gear, and the smallest is 6th. Be sure that all parts are put back in the correct sequence and facing the proper direction, and that all circlips and washers are properly in place.

**Output Shaft Gears**

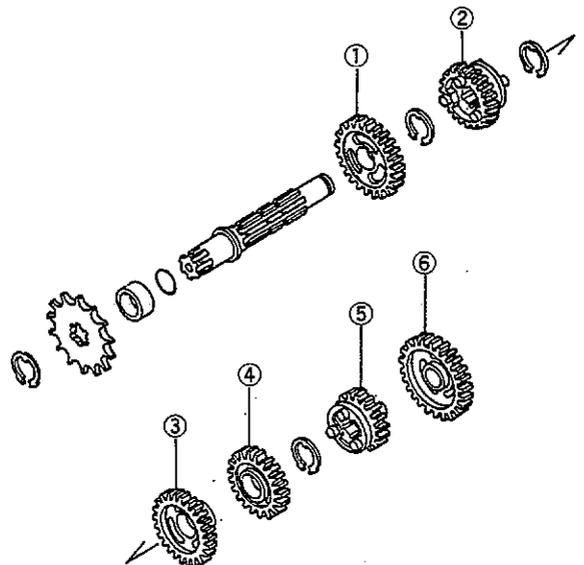
**KX60, KDX80:**

1. 2nd gear (34T; plain side faces left)
2. 5th gear (28T; fork groove goes to the right side of the gear teeth)
3. 4th gear (30T; dog recesses face left)
4. 3rd gear (31T; dog recesses face right)
5. 6th gear (26T; fork groove goes to the left side of the gear teeth)
6. 1st gear (37T; plain side faces right)



**KX80:**

1. 2nd gear (30T; plain side faces left)
2. 5th gear (24T; fork groove goes to the right side of the gear teeth)
3. 3rd gear (27T; dog recesses face left)
4. 4th gear (25T; dog recesses face right)
5. 6th gear (22T; fork groove goes to the left side of the gear teeth)
6. 1st gear (33T; plain side faces right)



•Check that each gear spins or slides freely on the transmission shaft without binding after assembly.

## 7-14 ENGINE BOTTOM END/TRANSMISSION

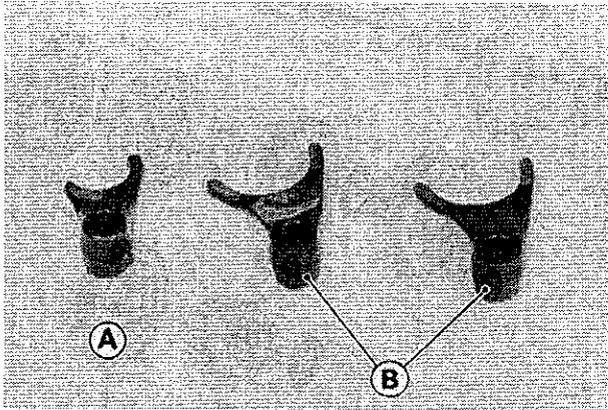
### Shift Drum and Fork Installation Notes

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

### Shift Fork Identification

**KX60, KDX80:**

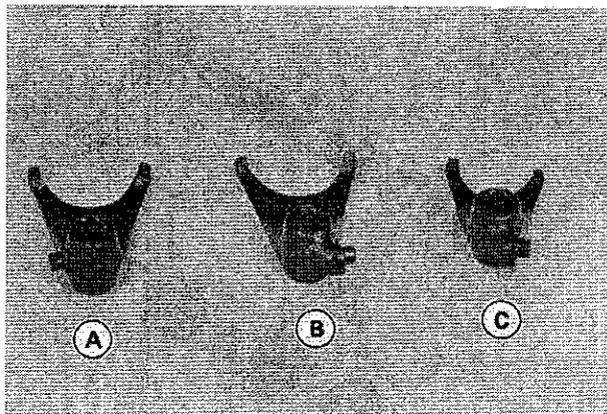
Drive shaft 3rd/4th gear shift fork	fingers are shorter than those of the other two shift forks
Output shaft 5th and 6th gear shift forks	fingers are longer than the drive shaft 3rd/4th gear shift fork



A. Drive Shaft 3rd/4th Gear Shift Fork  
B. Output Shaft 5th and 6th Gear Shift Forks

**KX80:**

Drive shaft 3rd/4th gear shift fork	fingers are shorter than those of the other two shift forks
Output shaft 5th gear shift fork	guide pin left
Output shaft 6th gear shift fork	guide pin right

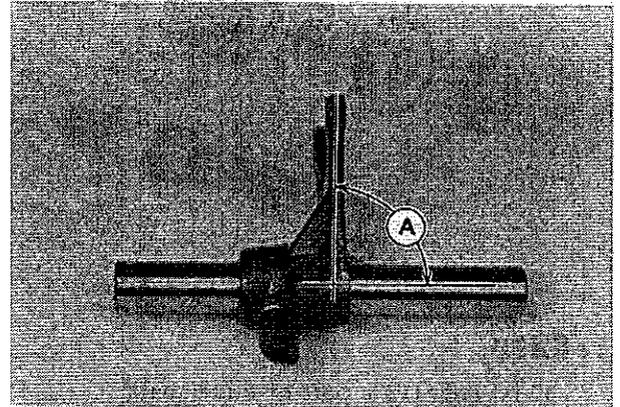


A. Output Shaft 5th Gear Shift Fork  
B. Output Shaft 6th Gear Shift Fork  
C. Drive Shaft 3rd/4th Gear Shift Fork

- Fit the shift fork guide pins into the corresponding shift drum grooves.
- Apply a little transmission oil to the shift rod, and slide it into the shift forks.

### Shift Fork Bending

- Visually inspect the shift forks, and replace any fork that is bent. A bent fork could cause difficulty in shifting, or allow the transmission to jump out of gear when under power.



A. 90°

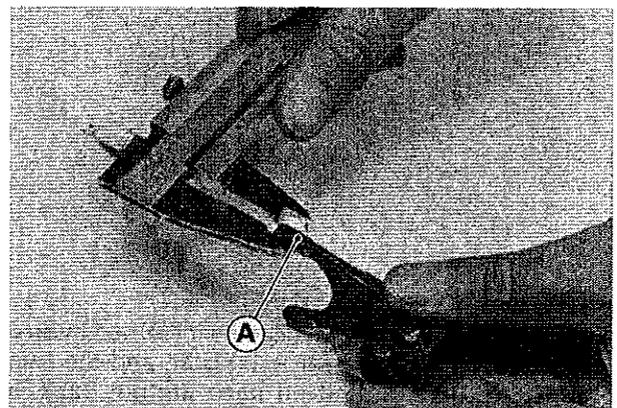
### Shift Fork/Gear Groove Wear

- Measure the thickness of the shift fork fingers, and measure the width of the shift fork grooves in the transmission gears.
- ★If the thickness of a shift fork finger is less than the service limit, the shift fork must be replaced.

### Shift Fork Finger Thickness

**Standard:** 3.9–4.0 mm

**Service Limit:** 3.8 mm

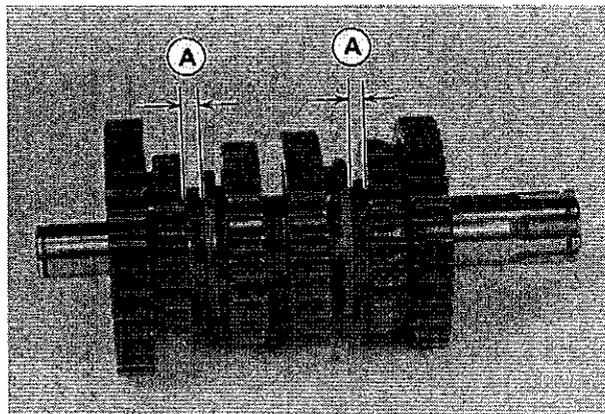


A. Shift Fork Finger

★If a gear shift fork groove is worn over the service limit, the gear must be replaced.

**Gear Shift Fork Groove Width**

**Standard:** 4.05–4.15 mm  
**Service Limit:** 4.25 mm



A. Gear Shift Fork Groove

**Shift Fork Guide Pin/Shift Drum Groove Wear**

•Measure the diameter of each shift fork guide pin, and measure the width of each shift drum groove.  
 ★If the guide pin on any shift fork is less than the service limit, the fork must be replaced.

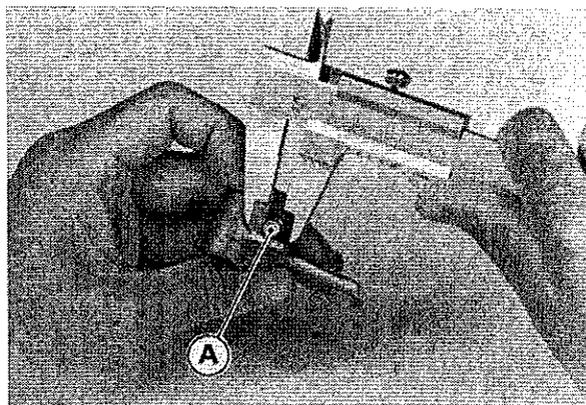
**Shift Fork Guide Pin Diameter**

**Standard:** 5.9–6.0 mm  
**Service Limit:** 5.85 mm

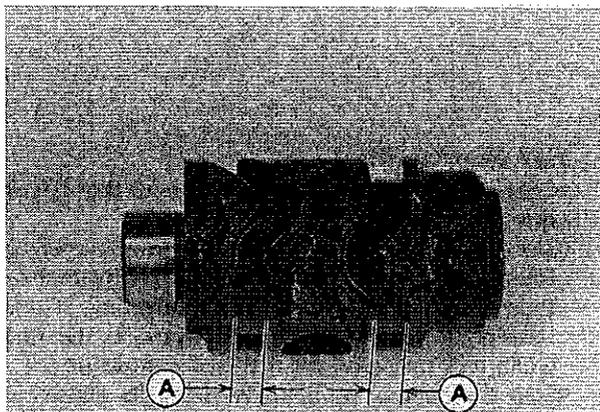
★If any shift drum groove is worn over the service limit, the drum must be replaced.

**Shift Drum Groove Width**

**Standard:** 6.05–6.20 mm  
**Service Limit:** 6.25 mm



A. Shift Fork Guide Pin



A. Shift Drum Grooves

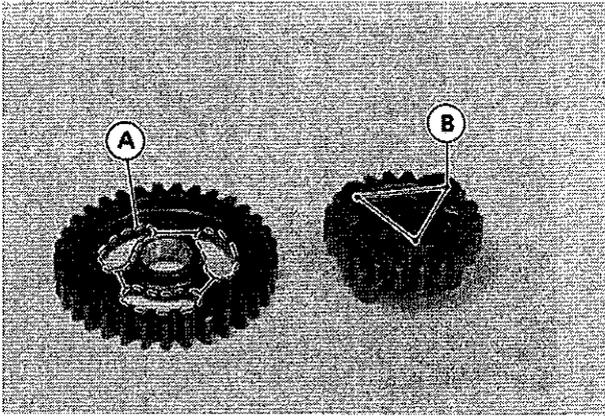
**Gear Damage**

•Visually inspect the gear teeth on the transmission gears.  
 ★Repair lightly damaged gear teeth with an oilstone. The gear must be replaced if the teeth are badly damaged.  
 ★At the same time that a gear is repaired or replaced, the driving gear should also be inspected and repaired or replaced if necessary.

**Gear Dog/Gear Dog Hole Damage**

•Visually inspect the gear dogs and gear dog holes.  
 ★Replace any damaged gears or gears with excessively worn dogs or dog holes.

## 7-16 ENGINE BOTTOM END/TRANSMISSION



A. Dog Holes

B. Dogs

### ***Ball Bearing Wear***

- Check the ball bearing on both sides of the shift drum, drive shaft and output shaft.
- Since the ball bearings are made to extremely close tolerances, the wear must be judged by feel rather than measurement. Clean each bearing in a high flash-point solvent, dry it (do not spin the bearing while it is dry), and oil it with transmission oil.
- Spin the bearing by hand to check its condition.
- ★ If the bearing is noisy, does not spin smoothly, or has any rough spots, replace it.

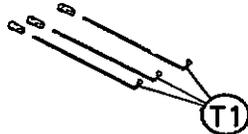
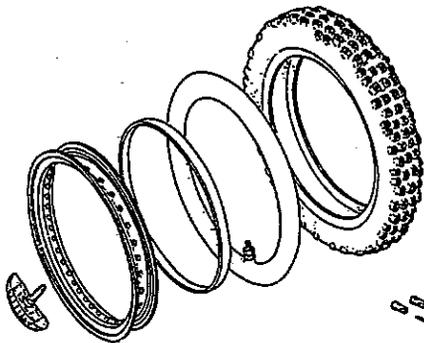
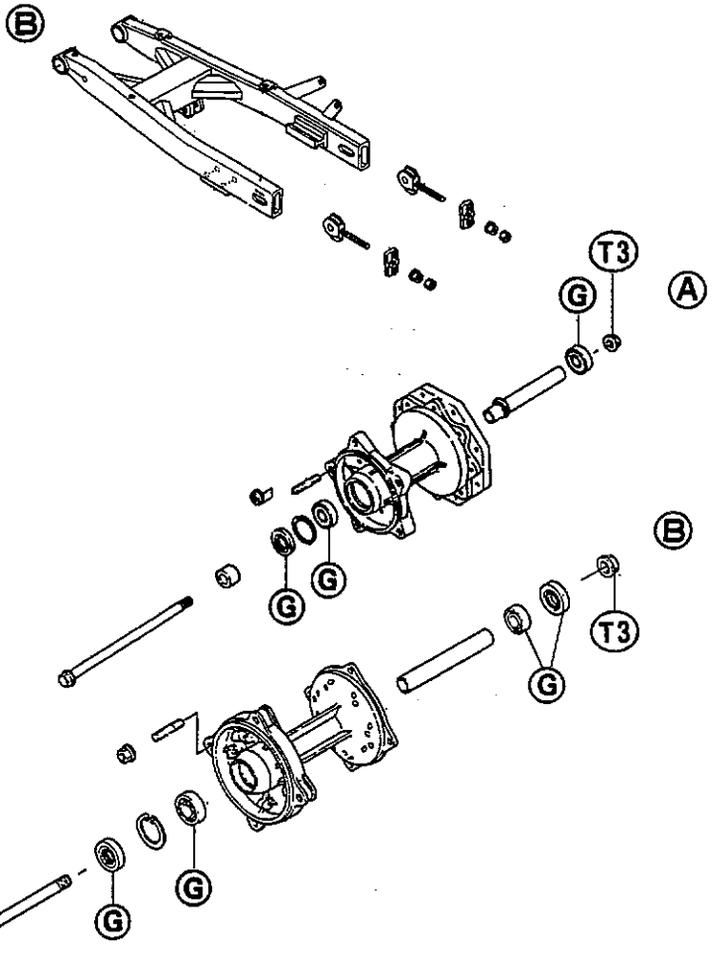
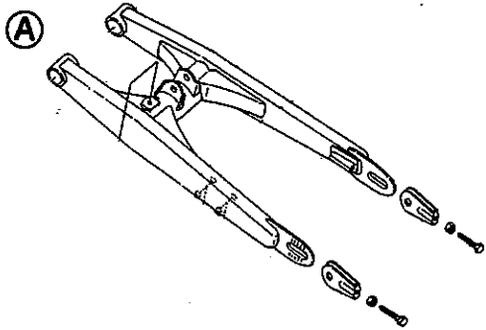
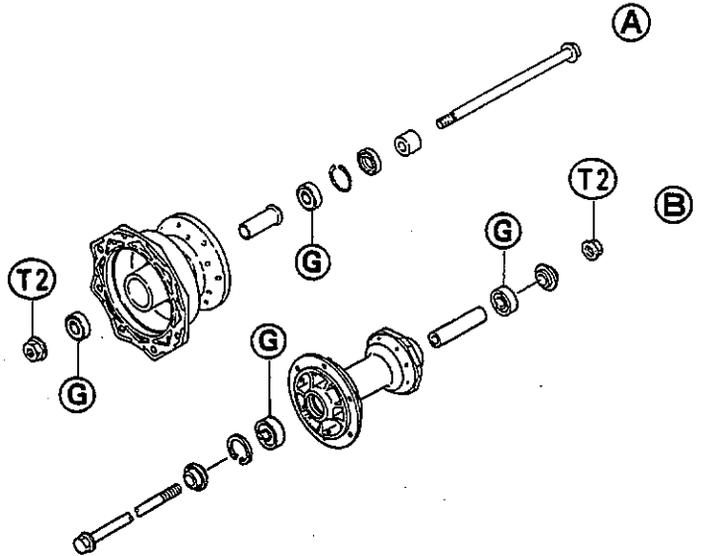
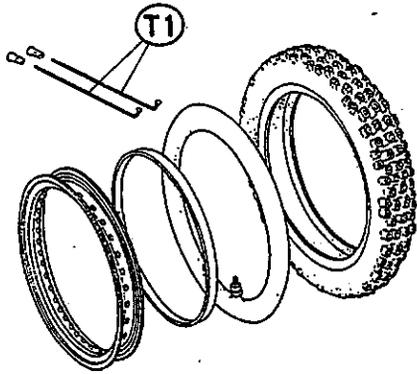
# Wheels/Tires

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# 8-2 WHEELS/TIRES

## Exploded View



A : KX60, KDX80  
B : KX80

- G : Apply grease.
- T1 : 1.5 N-m (0.15 kg-m, 13 in-lb)
- T2 (KX60, KDX80): 49 N-m (5.0 kg-m, 36 ft-lb)
- (KX80): 69 N-m (7.0 kg-m, 51 ft-lb)
- T3 (KX60, KX80): 69 N-m (7.0 kg-m, 51 ft-lb)
- (KDX80): 59 N-m (6.0 kg-m, 43 ft-lb)

.....  
**Specifications**  
 .....

Item	Standard	Service Limit
<b>Wheels:</b>		
Rim runout: Axial	Under 0.5 mm	2 mm
Radial	Under 0.8 mm	2 mm
Axle runout/100 mm	Under 0.10 mm	0.2 mm
<b>Tires:</b>		
<b>KX60</b>		
Front: Size	60/100-14	---
Make, type	DUNLOP K195	---
Rear: Size	80/100-12	---
Make, type	DUNLOP K195	---
<b>KX80L.M</b>		
Front: Size	70/100-17 40M	---
Make, type	DUNLOP K490	---
Rear: Size	90/100-14 49M	---
Make, type	DUNLOP K595	---
<b>KX80 N.P</b>		
Front: Size	70/100-19 42M	---
Make, type	DUNLOP K490 (E)K990	---
Rear: Size	90/100-16 52M	---
Make, type	DUNLOP K595 (E) K990	---
<b>KDX80</b>		
Front: Size	70/100-16 39M	---
Make, type	DUNLOP K195	---
Rear: Size	80/100-14 43M	---
Make, type	DUNLOP K195	---
Air pressure (All model)	100 kPa (1.0 kg/cm <sup>2</sup> , 14 psi)	---

(E): European model

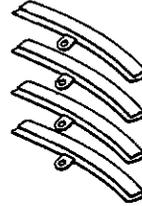
## 8-4 WHEELS/TIRES

.....  
**Special Tools**  
.....

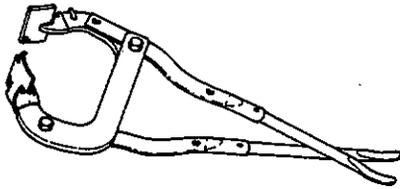
**Bearing Driver Set: 57001-1129**



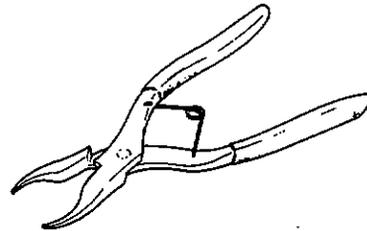
**Rim Protector: 57001-1063**



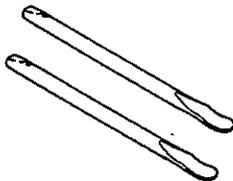
**Bead Breaker Ass'y: 57001-1072**



**Circlip Pliers: 57001-143**



**Tire Iron: 57001-1073**



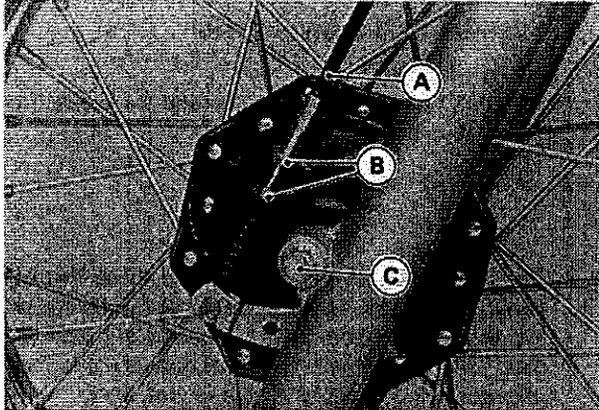
### **NOTE**

○The tire irons (P/N 57001-1073) are included in the bead breaker assembly (P/N 57001-1072).

.....  
**Wheels**  
 .....

**Front Wheel Removal**

- For the KX60, KDX80; loosen the nuts at the lower end of the brake cable, and remove the cable from the front brake panel. Also disconnect the brake cable tip from the brake cam lever.



A. Brake Cable                      C. Axle Shaft  
 B. Nuts

- Remove the axle nut.
- Place a stand or block under the motorcycle so that the front wheel is raised off the ground.
- Pull out the axle, and remove the wheel.

**CAUTION**

- For the KX80; 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.

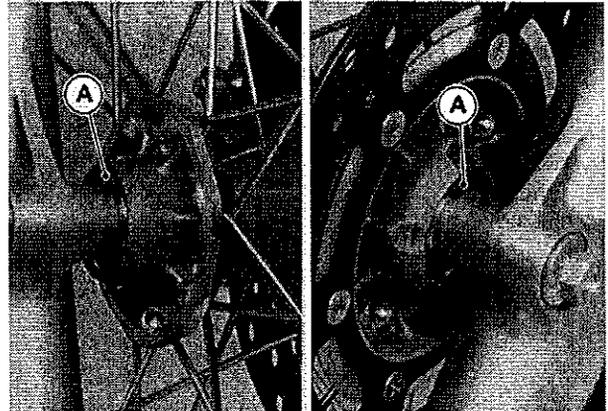
- For the KX80; insert a wood wedge between the disc brake pads. This prevents them from being moved out of their proper position, should the brake lever be squeezed accidentally.

**Front Wheel Installation Notes**

- Installation is the reverse of removal.
- For the KX60, KDX80; install the collar on the right side of the hub.
- For the KX80; install the collars on both sides of the hub.

KX60, KDX80:

KX80:



A. Collar

- Tighten the axle nut to the specified torque.

**Tightening Torque:**

**KX60, KDX80: 49N-m (5.0 kg-m, 36 ft-lb)**

**KX80: 69N-m (7.0 kg-m, 51 ft-lb)**

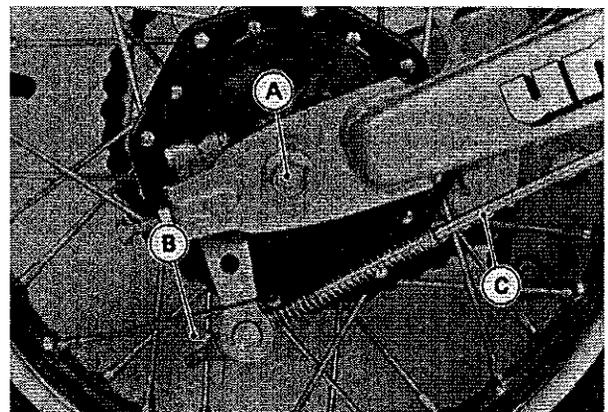
- Check the front brake for weak braking power and brake drag.

**WARNING**

- For the KX80; do not attempt to drive the motorcycle until a full brake lever is obtained by pumping the brake lever until the pads are against the disc. The brake will not function on the first application of the lever if this is not done.

**Rear Wheel Removal**

- Place a stand or block under the motorcycle so that the rear wheel is raised off the ground.
- For the KX60, KDX80; remove the adjusting nut on the brake rod to free the brake rod from the brake cam lever. Also remove the brake cable joint and spring.



A. Axle Shaft                      B. Adjusting Nut                      C. Brake Rod

## 8-6 WHEELS/TIRE

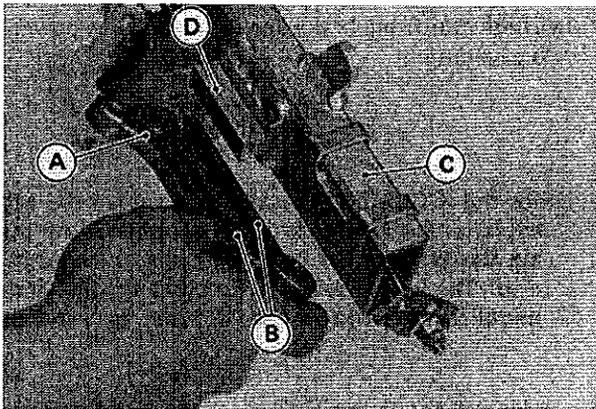
- For the KX80; remove the caliper cover, unscrew the caliper mounting bolts, and remove the caliper from the disc.
- For the KX80; insert a wood wedge between the brake pads this prevents them from being moved out of their proper position, should the brake pedal be squeezed accidentally.
- Remove the clip from the master link using pliers, and free the drive chain from the rear sprocket.
- Remove the axle nut.
- Pull out the axle, and remove the chain adjuster, brake holder, and rear wheel.

### CAUTION

- For the KX80; 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.

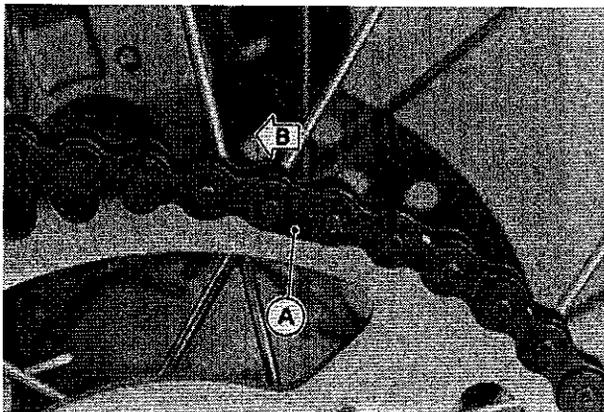
### Rear Wheel Installation Notes

- 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 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

- Adjust the drive chain slack (see Drive Chain Slack Inspection in the Final Drive chapter).
- Tighten the axle nut to the specified torque.

### Tightening Torque:

KX60,80: 69N-m (7.0 kg-m, 51 ft-lb)

KDX80: 59N-m (6.0 kg-m, 43 ft-lb)

- For the KX80; tighten the caliper mounting bolts to the specified torque.

### Tightening Torque:

25N-m (2.5 kg-m, 18 ft-lb)

- Adjust the rear brake.
- For the KX80; check the rear brake for weak braking power and brake drag.

### WARNING

- For the KX80; 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.

### Wheel Alignment Inspection

- Refer to Wheel Alignment Inspection in the Final Drive chapter.

### Wheel Alignment Adjustment

- Refer to Wheel Alignment Adjustment in the Final Drive chapter.

### Wheel Inspection

- Place a stand or block under the motorcycle so that the front/rear wheel is raised off the ground.
- Spin the wheel lightly, and check for roughness or binding.
- ★ If roughness or binding is found, replace or lubricate the hub bearings.
- Visually inspect the front and rear axles for damage.
- ★ If axle is damaged or bent, replace it.

### Spoke Inspection

- Check that all the spokes are tightened evenly.
- ★ If spoke tightness is uneven or loose, tighten the spoke nipples to the specified torque evenly.

### Tightening Torque:

1.5N-m (0.15 kg-m, 13 in-lb)

[not over 3N-m (0.3 kg-m, 26 in lb)]

- Check the rim runout.

**⚠ WARNING**

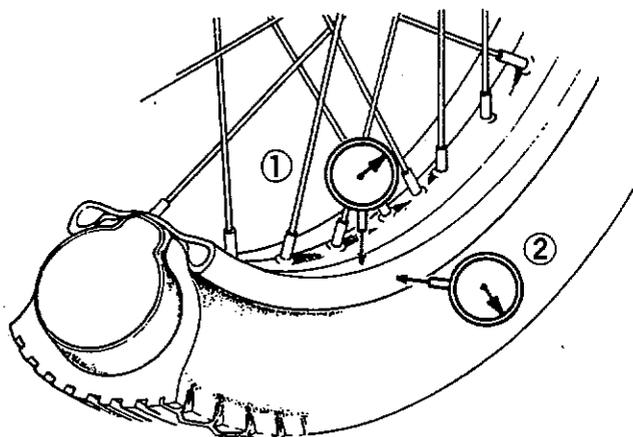
If a spoke breaks, it should be replaced immediately. A missing spoke places an additional load on the other spokes, which will eventually cause other spokes to break.

**Rim Inspection**

- Inspect the rim for small cracks, dents, bending, or warping.
- ★ If there is any damage to the rim, it must be replaced.
- Set a dial gauge against the side of the rim, and rotate the rim to measure the axial runout. The difference between the highest and lowest dial readings is the amount of runout.
- Set a dial gauge against the outer circumference of the rim, and rotate the rim to measure the axial runout. The difference between the highest and lowest dial readings is the amount of runout.
- ★ If rim runout exceeds the service limit, check the wheel bearings first. Replace them if they are damaged. If the problem is not due to bearings, correct the rim warp (runout). A certain amount of rim warp can be corrected by reentering the rim. Loosen some spokes and tighten others within the standard torque to change the position of different parts of the rim. If the rim is badly bent, however, it must be replaced.

**Rim Runout(with tire installed)**

	Standard	Service Limit
Axial	under 0.5 mm	2 mm
Radial	under 0.8 mm	2 mm



1. Radial Rim Runout
2. Axial Rim Runout

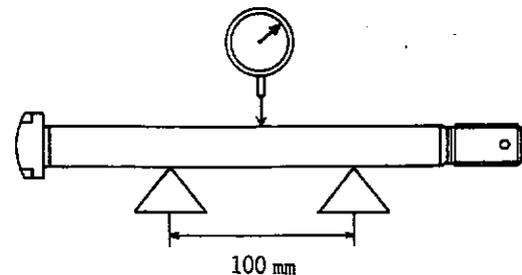
**Axle Inspection**

- Place the axle in V blocks that are 100 mm apart, and set a dial gauge on the axle at a point halfway between the blocks. Turn the axle to measure the runout. The difference between the highest and lowest dial readings is the amount of runout.
- ★ If runout exceeds the service limit, replace the axle.

**Axle Runout/100 mm**

**Standard: under 0.10 mm**  
**Service Limit: 0.2 mm**

**Axle Runout**



## 8-8 WHEELS/TIRES

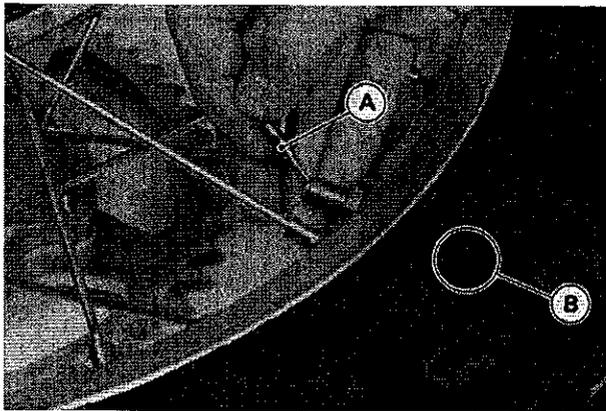
### Tires

#### Tire Removal

#### CAUTION

○For the KX80; 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.

- Remove the wheel from the motorcycle (see Wheels).
- To maintain wheel balance, mark the valve stem position on the tire with chalk so that the tire can be reinstalled in the same position.
- Take out the valve core to let out the air.



A. Unscrew valve core. B. Mark valve stem position.

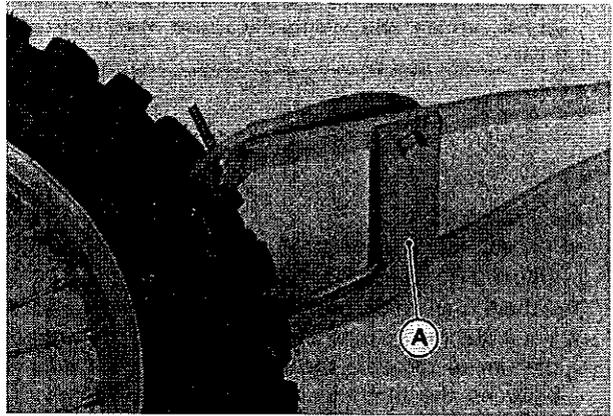
○When handling the rim, be careful not to damage the aluminum rim flanges.

- Lubricate the tire beads and rim flanges on both sides with a soap and water solution or rubber lubricant. This helps the tire beads slip off the rim flanges.

#### CAUTION

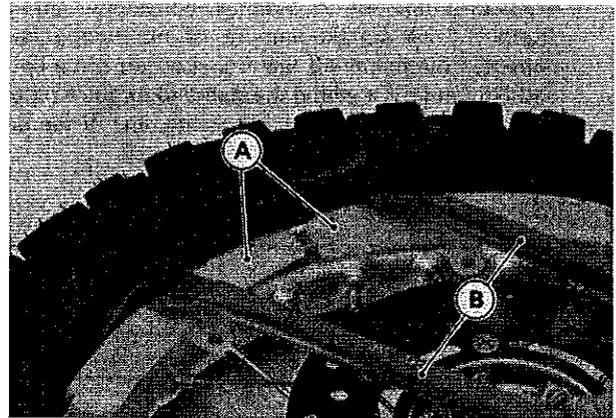
○Never lubricate with mineral oil (engine oil) or gasoline because they will cause deterioration of the tire.

- Break the beads away from both sides of the rim with the bead breaker (special tool).



A. Bead Breaker: 57001-1072

- Pry the tire off the rim with tire irons (special tool) protecting the rim with rim protectors (special tool).

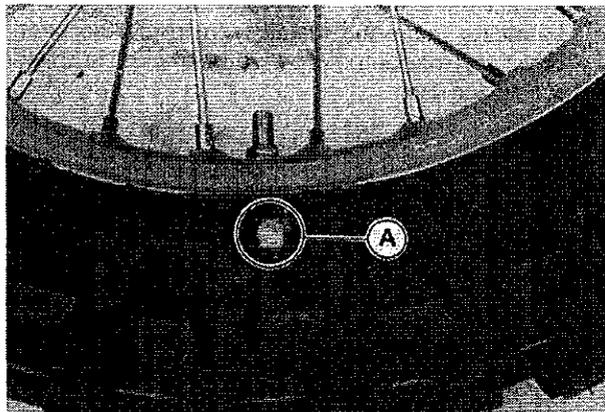


A. Rim Protectors: 57001-1063  
B. Tire Irons: 57001-1073

#### Tire Installation Notes

- Installation is the reverse of removal (see Wheels).

- Position the tire on the rim so that the valve is at the tire balance mark (the chalk mark made during removal or the yellow paint mark on a new tire).



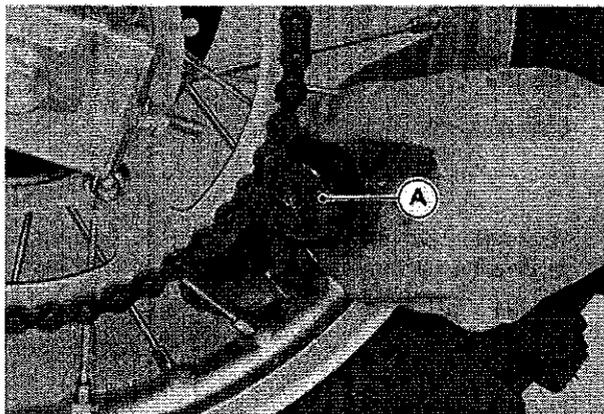
A. Balance Mark

- Check and adjust the air pressure after installing.

**Tire Pressure Inspection/Adjustment**

- Using a tire pressure gauge, measure the tire pressure when the tires are cold.
- ★Adjust the tire pressure to suit track conditions and rider preference, but do not stray too far from the recommended pressure.

Track Condition	Tire Pressure
<ul style="list-style-type: none"> <li>○When the track is wet, muddy, sandy or slippery, reduce the tire pressure to increase the tire tread surface on the ground.</li> <li>○When the track is pebbly or hard, increase the tire pressure to prevent damage or punctures, though the tires will skid more easily.</li> </ul>	<p>80 kPa (0.8 kg/cm<sup>2</sup>, 11 psi)</p> <p style="text-align: center;">↕</p> <p>100 kPa (1.0 kg/cm<sup>2</sup>, 14 psi)</p>



A. Tire Pressure Gauge

**Tire Inspection**

As the tire tread wears down, the tire becomes more susceptible to the puncture and failure.

- Remove any imbedded stones or other foreign particles from the tread.
- Visually inspect the tire for cracks and cuts, replacing the tire in case of bad damage. Swelling or high spots indicate internal damage, requiring tire replacement.

**WARNING**

- To ensure safe handling and stability, use only the recommended standard tires for replacement, inflated to the standard pressure.

**NOTE**

- Check and balance the wheel when a tire is replaced with a new one.

**Standard Tire**

**(KX60)**

- Front: Size 60/100-14  
Make, Type DUNLOP K195
- Rear: Size 80/100-12  
Make, Type DUNLOP K195

**(KX80L M)**

- Front: Size 70/100-17 40M  
Make, Type DUNLOP K490
- Rear: Size 90/100-14 49M  
Make, Type DUNLOP K595

**(KX80 N.P)**

- Front: Size 70/100-19 42 M  
Make, Type DUNLOP K490 (E)K990
- Rear: Size 90/100-16 52 M  
Make, Type DUNLOP K595 (E)K990

**(KDX80)**

- Front: Size 70/100-16 39 M  
Make, Type DUNLOP K195
- Rear: Size 80/100-14 43 M  
Make, Type DUNLOP K195

## 8-10 WHEELS/TIRE

### Hub Bearing

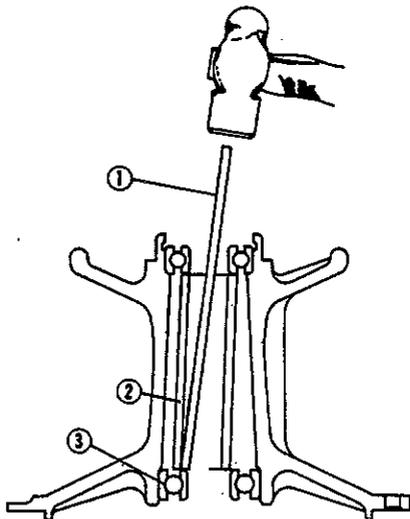
#### CAUTION

- For the disc brake models; 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.

#### Hub Bearing Removal Notes

- Remove the hub bearing by tapping evenly around the bearing inner race as shown.

#### Bearing Removal

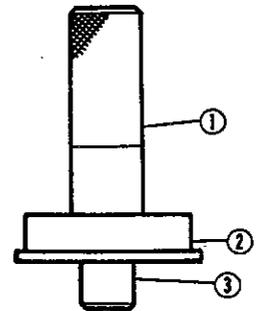
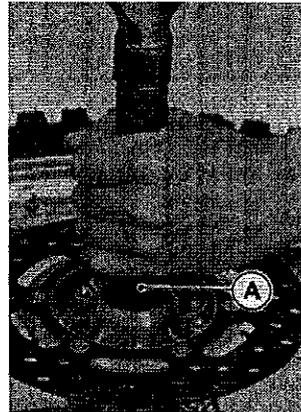


1. Bar
2. Distance Collar
3. Hub Bearing

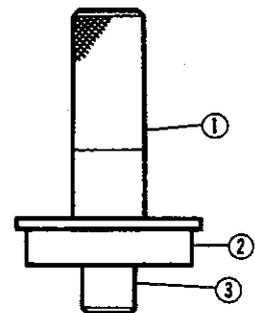
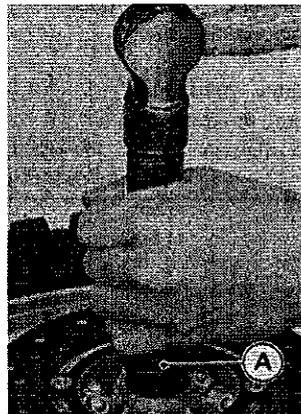
#### Hub Bearing Installation Notes

- Before installing the wheel bearings, blow any dirt or foreign particles out of the hub with compressed air to prevent contamination of the bearings.
- Inspect the bearings and replace them if necessary. Lubricate them and install them using the bearing driver set (special tool) so that the marked or shielded sides face out.

#### Front Hub Bearing



#### Rear Hub Bearing



- A. Bearing Driver Set: 57001-1129
1. Bearing Driver Holder
  2. Bearing Driver
  3. Bearing Driver

- Inspect the grease seal and replace if necessary. Press it in until it stops at the circlip in the hole using the same special tools used for bearing installation.

**Hub Bearing Inspection and Lubrication**

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

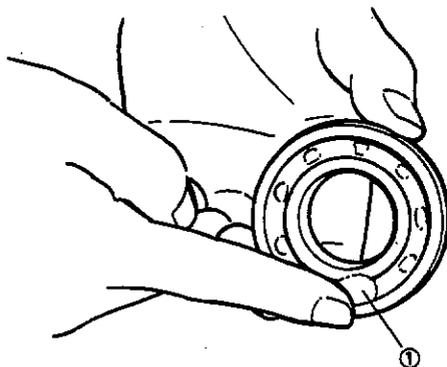
- For front hub bearing, turn each bearing back and forth while checking for roughness or binding.
- ★ If roughness or binding is found, replace the bearing.
- For rear hub bearing, wash the bearing with a high flash-point solvent, dry it (do not spin it while it is dry), and oil it. Spin it by hand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

**Grease Seal Inspection and Lubrication**

If the grease seals are examined without removing the seals themselves, look for discoloration (indicating the rubber has deteriorated), hardening, damage to the internal ribbing, or other damage. If the seal or internal ribbing has hardened, the clearance between the seal and the axle sleeve will not be taken up, which will allow dirt and moisture to enter and reach the bearing. If in doubt as to its condition and whenever a seal is removed for greasing the bearing, the seal should be replaced. The seals are generally damaged upon removal.

**NOTE**

◦ *Since the bearings on the rear wheel hub are packed with grease and shielded, they can not be lubricated.*



1. Grease.

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



# Final Drive

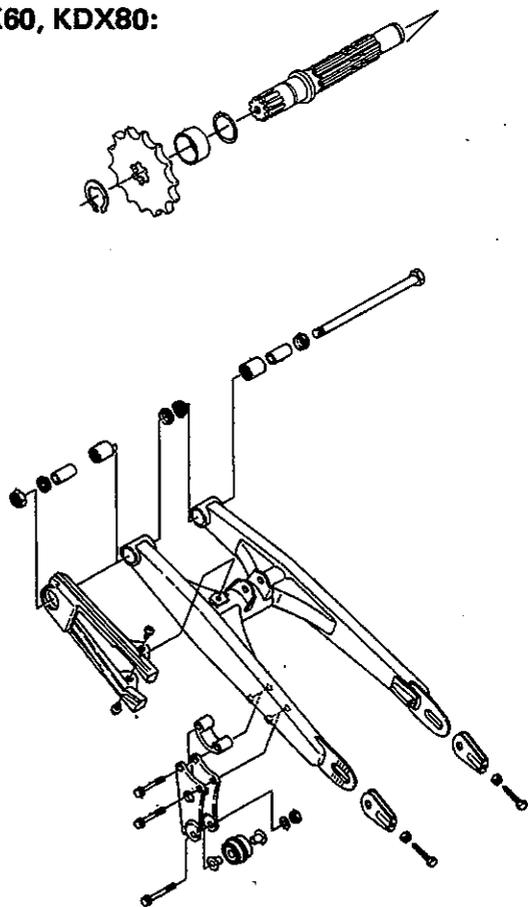
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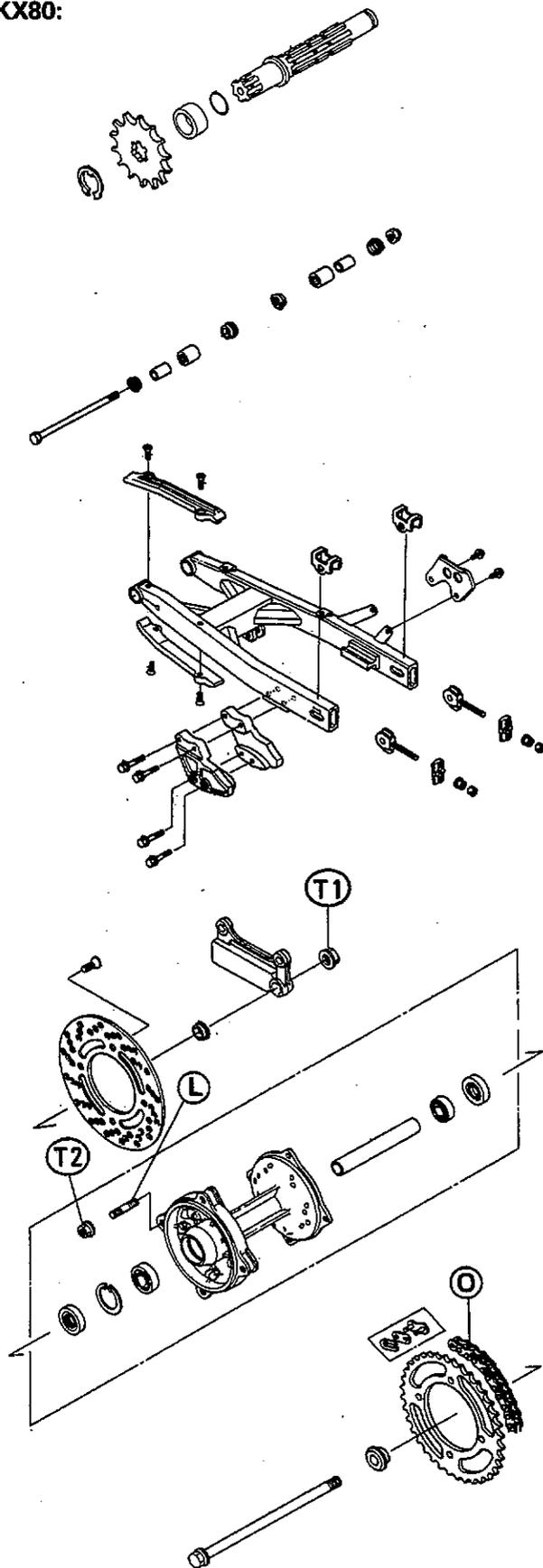
# 9-2 FINAL DRIVE

## Exploded View

KX60, KDX80:



KX80:



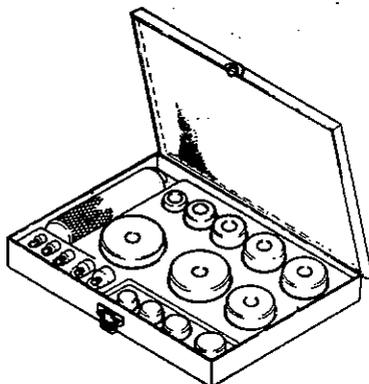
- O : Apply oil.
- G : Apply grease.
- L : Apply a non-permanent locking agent.
- T1 KX60, KX80 : 69 N-m (7.0 kg-m, 51 ft-lb)
- KDX80 : 59 N-m (6.0 kg-m, 43 ft-lb)
- T2 KX60 : 21 N-m (2.1 kg-m, 15 ft-lb)
- KX80 : 29 N-m (3.0 kg-m, 22 ft-lb)

.....  
**Specifications**  
 .....

Item	Standard	Service Limit
<b>Drive Chain:</b>		
Make	Daido	----
Type	D.I.D 420 M	----
Length:	KX60, KDX80 104 Links	----
	KX80 L.M 120 Links	----
	KX80 N.P 126 Links	----
Chain slack:	KX60 15—30 mm	Less than 15mm, or more than 35mm
	KX80, KDX80 40—50 mm	Less than 40mm, or more than 55 mm
20-link length	254.0 mm	259 mm
<b>Sprockets:</b>		
Engine sprocket diameter:	KX60,80 44.71—44.91mm/13T	44.0 mm
	KDX80 49.1—49.3mm/14T	48.4 mm
Rear sprocket diameter:	KX60 170.3—170.8mm/44T	170 mm
	KX80 L.M 186.46 — 186.96 mm/48T	186 mm
	KX80 N.P 206.57 — 207.07 mm/53T	206.2 mm
	KDX80 186.46 — 186.96 mm/48T	186 mm
Rear sprocket warp	Under 0.4 mm	0.5 mm

.....  
**Special Tools**  
 .....

**Bearing Driver Set: 57001-1129**



## 9-4 FINAL DRIVE

### Drive Chain

#### Drive Chain Slack Inspection

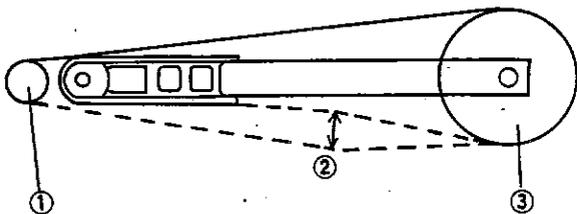
- Support the motorcycle on its side stand.
- Check the wheel alignment (see Wheel Alignment Inspection), and adjust it if necessary (see Wheel Alignment Adjustment).

#### NOTE

◦Clean the drive chain if it is dirty, and lubricate it if it appears dry.

- Rotate the rear wheel to find the position where the chain is tightest.
- Measure the vertical movement as shown.
- ★If the drive chain slack exceeds the standard, adjust it.

#### Drive Chain Slack Inspection



1. Engine Sprocket
2. Chain Vertical Movement (Slack)
3. Rear Sprocket

#### Drive Chain Slack

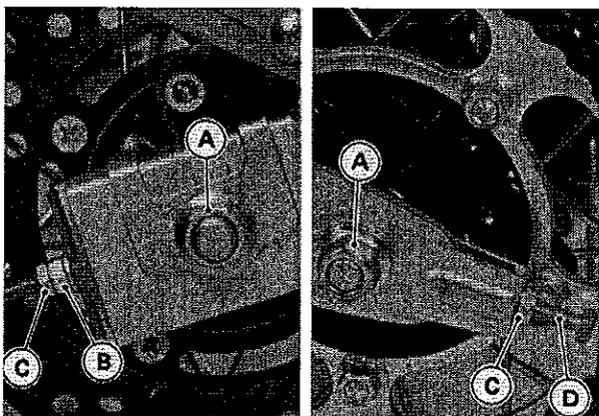
**Standard: (KX60) 15–30 mm**  
**(KX80, KDX80) 40–50 mm**

#### Drive Chain Slack Adjustment

- Loosen the left and right chain adjuster locknuts.
- Loosen the axle nut.

**KX80:**

**KX60, KDX80:**



- A. Axle Nut  
B. Adjusting Nut

- C. Locknut  
D. Adjusting Bolt

★If the chain is too tight, back out the left and right chain adjusting nuts or bolts evenly, and kick the wheel forward until the chain is too loose.

★If the chain is too loose, turn both chain adjusting nuts or bolts evenly until the drive chain has the correct amount of slack. To keep the chain and wheel properly aligned, the notch on the left chain adjuster should align with the same swing arm mark as the right chain adjuster notch.

- Check the wheel alignment.
- Tighten both chain adjuster locknuts securely.
- For the drum brake model: center the brake panel assembly in the brake drum. This is done by tightening the axle lightly, spinning the wheel, and depressing the brake pedal forcefully. The partially tightened axle allows the brake panel assembly to center itself in the brake drum.

#### NOTE

◦This procedure can prevent a soft, or “spongy feeling” brake.

- Tighten the axle nut to the specified torque.

#### Tightening Torque:

**KX60, KX80: 69 N-m (7.0 kg-m, 51 ft-lb)**

**KDX80: 59 N-m (6.0 kg-m, 43 ft-lb)**

- Rotate the wheel, measure the chain slack again at the tightest position, and readjust if necessary.

#### WARNING

◦If the axle nut is not securely tightened, an unsafe riding condition may result.

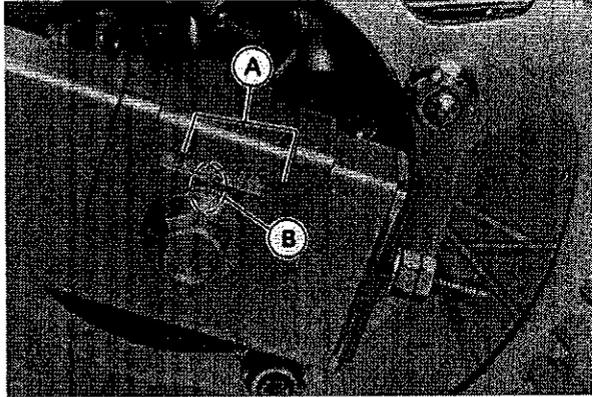
- Check the rear brake for weak braking power, and brake drag (see the Brakes chapter).

#### NOTE

◦In 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 45 – 55 mm (KX60 model: 20 – 35 mm) of slack whenever necessary.

**Wheel Alignment Inspection**

- Check that the notch on the left chain adjuster aligns with the same swing arm mark as the right chain adjuster.



A. Marks

B. Notch

**NOTE**

- Wheel alignment can also be checked using the straightedge or string method.

**WARNING**

- Misalignment of the wheel will result in abnormal wear, and may result in an unsafe riding condition.

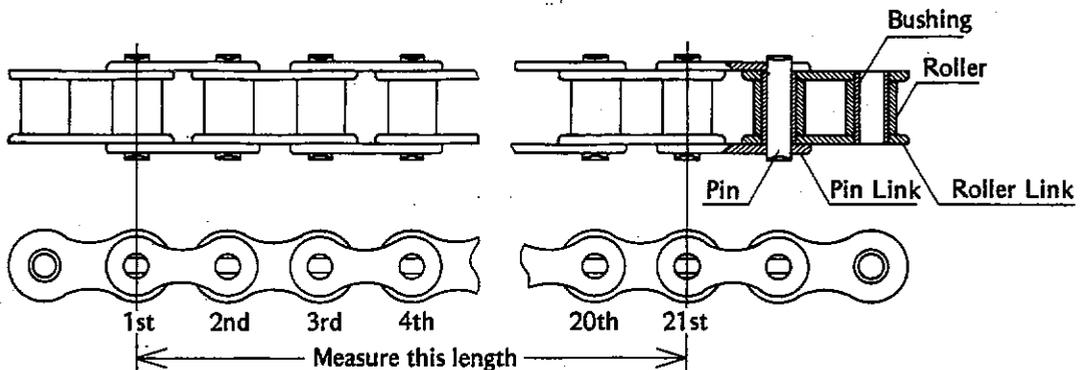
**Wheel Alignment Adjustment**

This procedure is the same as Drive Chain Slack Adjustment.

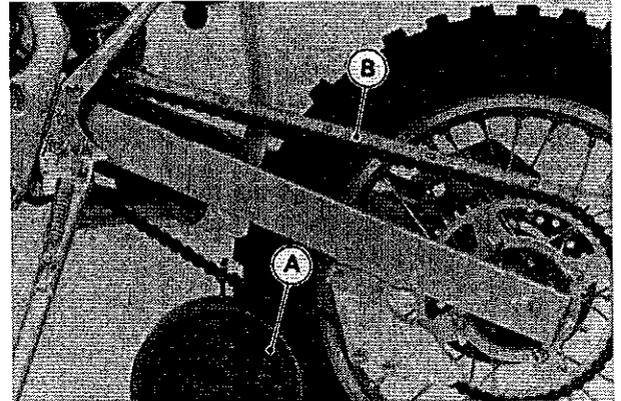
**Drive Chain Wear Inspection**

- Rotate the rear wheel to inspect the drive chain for damaged rollers, and loose pins and links.

**Drive Chain Wear Inspection**



- ★ If there is any irregularity, replace the drive chain.
- ★ Lubricate the drive chain if it appears dry.
- Stretch the chain taut by hanging a 10 kg (20 lb) weight on the chain.
- Measure the length of 20 links on the straight part of the chain from the pin center of the 1st pin to the pin center of the 21st pin. Since the chain may wear unevenly, take measurements at several places.
- ★ If any measurements exceed the service limit, replace the chain. Also, replace the front and rear sprockets when the drive chain is replaced.



A. Weight

B. Measure

**Drive Chain 20-Link Length.**

<b>Standard:</b>	<b>254.0 mm</b>
<b>Service Limit:</b>	<b>259 mm</b>

**WARNING**

- If the drive chain wear exceeds the service limit, replace the chain or an unsafe riding condition may result. A chain that breaks or jumps off the sprockets could snag on the engine sprocket or lock the rear wheel, severely damaging the motorcycle and causing it to go out of control.

## 9-6 FINAL DRIVE

### Drive Chain

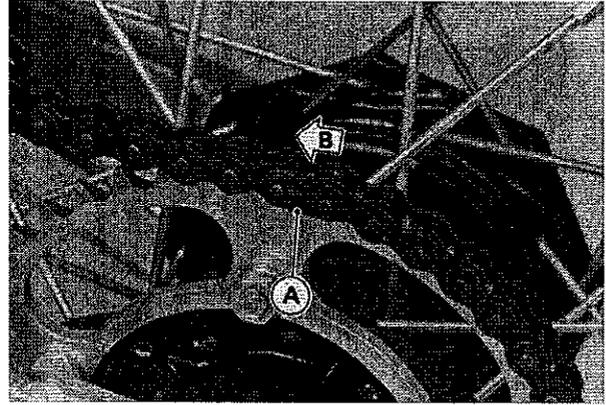
Make	Daido
Type	D.I.D420M
Links:	KX60, KDX80
	104
	KX80 L.M
	120
	KX80 N.P
	126

### Drive Chain Lubrication

- If the chain appears especially dirty, it should be cleaned before lubrication with high flash point solvent.
- Apply oil to the sides of the rollers so that oil will penetrate to the rollers and bushings.
- Wipe off any excess oil.

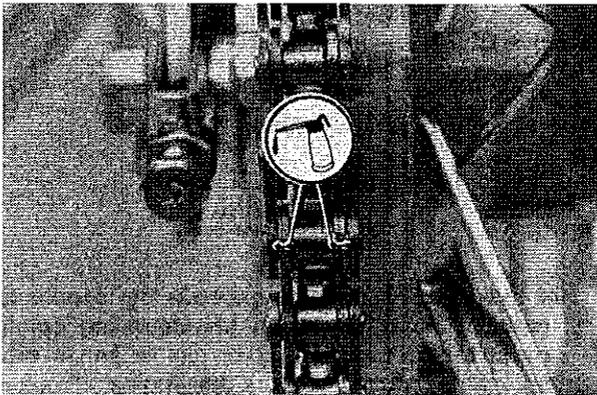
### Drive Chain Installation Notes

- Installation is the reverse of removal.
- Fit the drive chain back onto the sprockets with the ends at the rear sprocket.
- Install the master link from the frame side.
- Install the clip so that the closed end of the "U" pointed in the direction of chain rotation.



A. Clip      B. Direction of Drive Chain Rotation

### Drive Chain Lubrication



- Adjust the drive chain slack (see Drive Chain Slack Adjustment).
- Check the brake for weak braking power, and brake drag (see the brakes chapter).

### Drive Chain Removal

- Remove the engine sprocket or magneto cover
- Remove the clip from the master link using pliers, and free the drive chain from the rear sprocket.
- Remove the drive chain from the chassis.

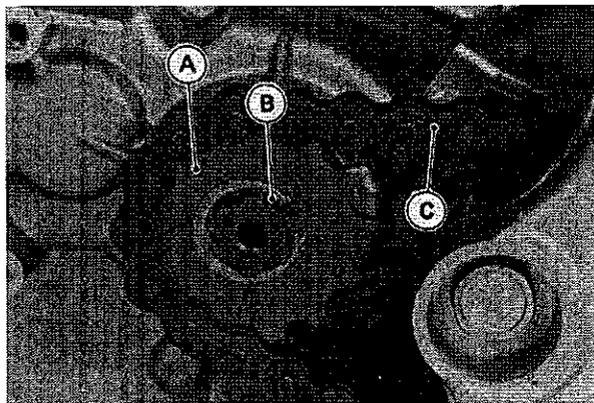
**Sprocket**

**Engine Sprocket Removal**

- Remove the following parts.  
Engine Sprocket Cover or Magneto Cover  
Drive Chain (free of engine sprocket)
- Remove the circlip, and pull off the engine sprocket.

**Engine Sprocket Installation Notes**

- Installation is the reverse of removal.



A. Engine Sprocket      C. Drive Chain  
B. Circlip

**Rear Sprocket Removal**

- Remove the rear wheel (see Rear Wheel Removal in the Wheels/Tires chapter).

**CAUTION**

- For the KX80; do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that the disc does not touch the ground.

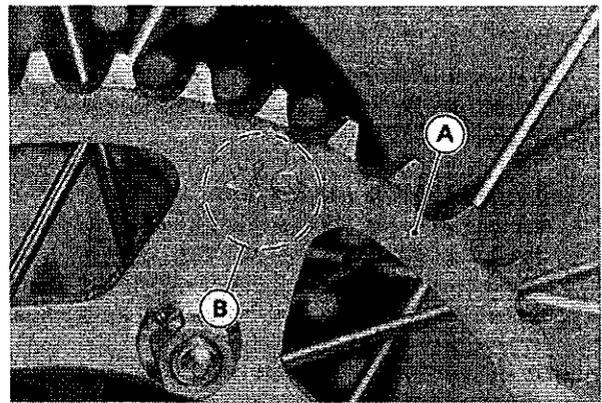
- Unscrew the rear sprocket nuts or bolts, and remove the rear sprocket.

**Rear Sprocket Installation Notes**

- Installation is the reverse of removal.
- Install the rear sprocket so that the marked side faces out.
- Tighten the rear sprocket nuts or bolts to the specified torque.

**Tightening Torque:**

- KX60(Nuts): 21 N-m (2.1 kg-m, 15 ft-lb)
- KX80(Nuts): 29 N-m (3.0 kg-m, 22 ft-lb)
- KDX80(Bolts): 21 N-m (2.1 kg-m, 15 ft-lb)

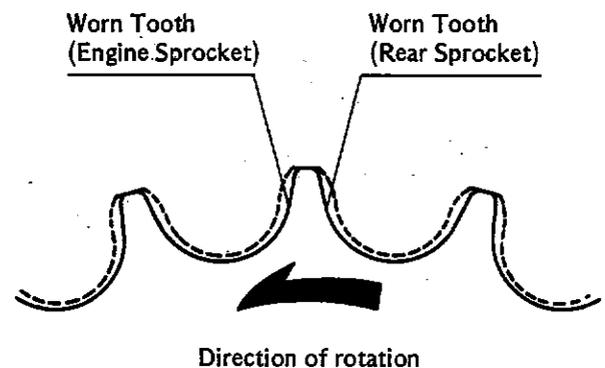


A. Rear Sprocket      B. Mark

**Sprocket Wear Inspection**

- Visually inspect the front and rear sprocket teeth for wear and damage.
- ★If they are worn as illustrated or damaged, replace the sprocket.

**Sprocket Wear Inspection**



- Measure the diameter of the sprocket at the base of the teeth.
- ★If the sprocket is worn down to less than the service limit, replace the sprocket.

**Sprocket Diameter**

(Engine)

Model	Standard	Service Limit
KX60.80	44.71–44.91mm	44 mm
KDX80	49.1–49.3 mm	48.4 mm

(Rear)

Model	Standard	Service Limit
KX60	170.3–170.8mm	170 mm
KX80-L.M	186.46 – 186.96 mm	186 mm
KX80-N.P	206.57 – 207.07 mm	206.2 mm
KDX80	186.46 – 186.96 mm	186 mm

## 9-8 FINAL DRIVE

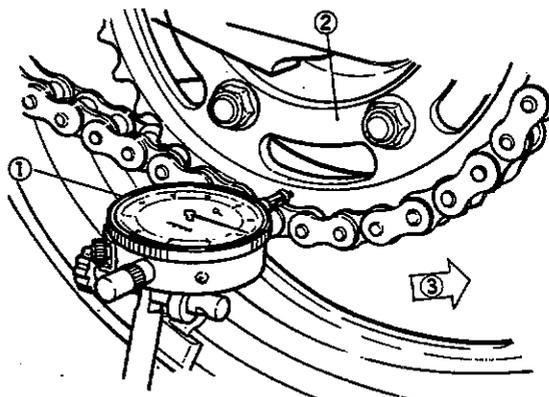
### NOTE

*If a sprocket requires replacement, the chain is probably worn also. When replacing a sprocket, inspect the chain.*

#### **Sprocket Warp Inspection**

- Elevate the rear wheel so that it will turn freely, and set a dial gauge against the rear sprocket near the teeth as shown. Rotate the rear wheel. The difference between the highest and lowest dial gauge readings is the amount of runout (warp).
- ★If the runout exceeds the service limit, replace the rear sprocket.

#### **Sprocket Warp Inspection**



1. Dial Gauge  
2. Rear Sprocket

3. Rotate

#### **Rear Sprocket Warp**

**Standard:** Under 0.4 mm

**Service Limit:** 0.5 mm

# Brakes

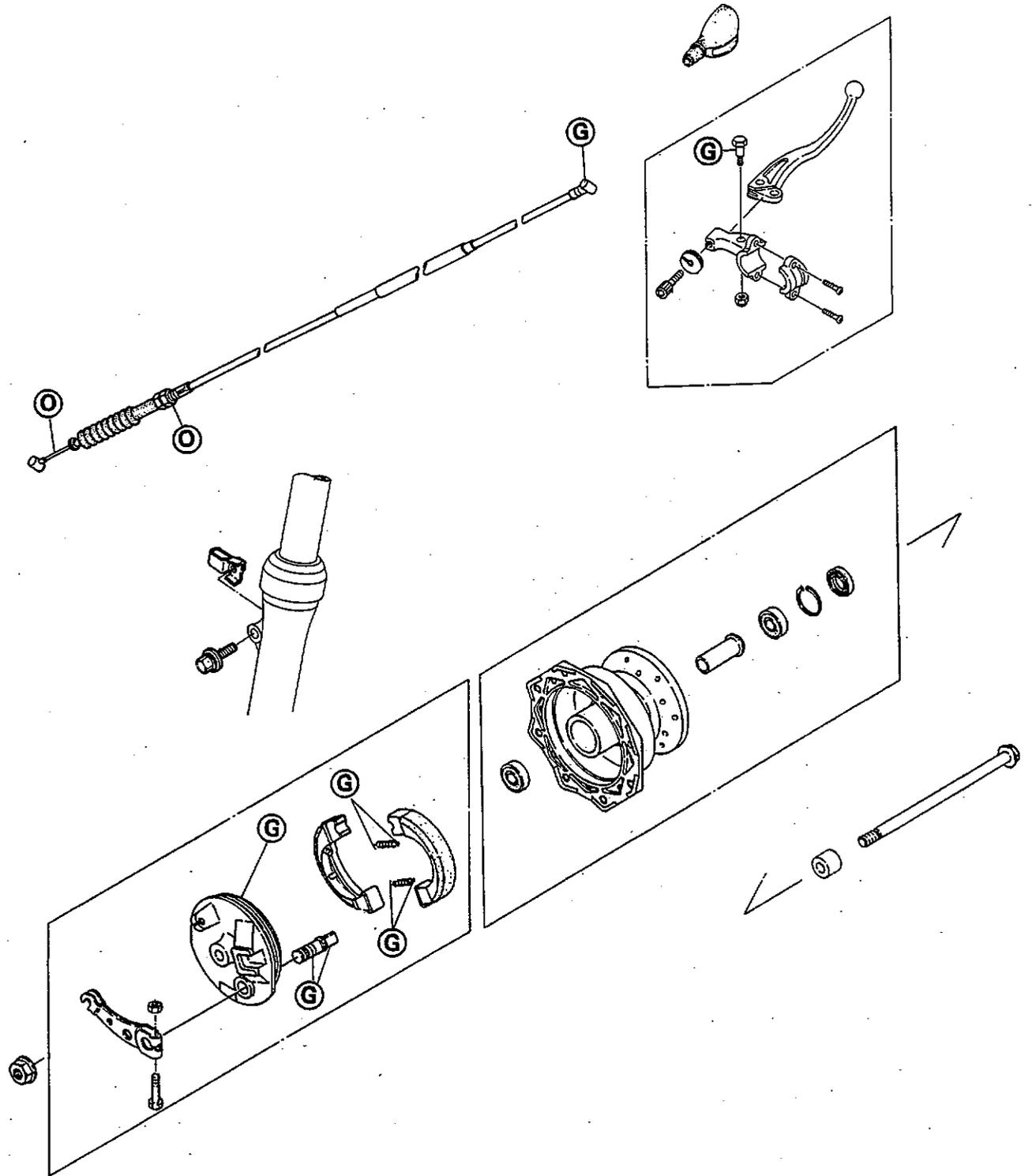
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Front Brake Lever Play		Changing Brake Fluid .....	10-21
Adjustment .....	10-13	Bleeding the Brake Line .....	10-21
Rear Brake Pedal Position		Brake Hose .....	10-22
Adjustment .....	10-13	Brake Hose Removal/Installation Notes ....	10-22
Rear Brake Pedal Play Adjustment ....	10-14	Brake Hose Inspection .....	10-22

# 10-2 BRAKES

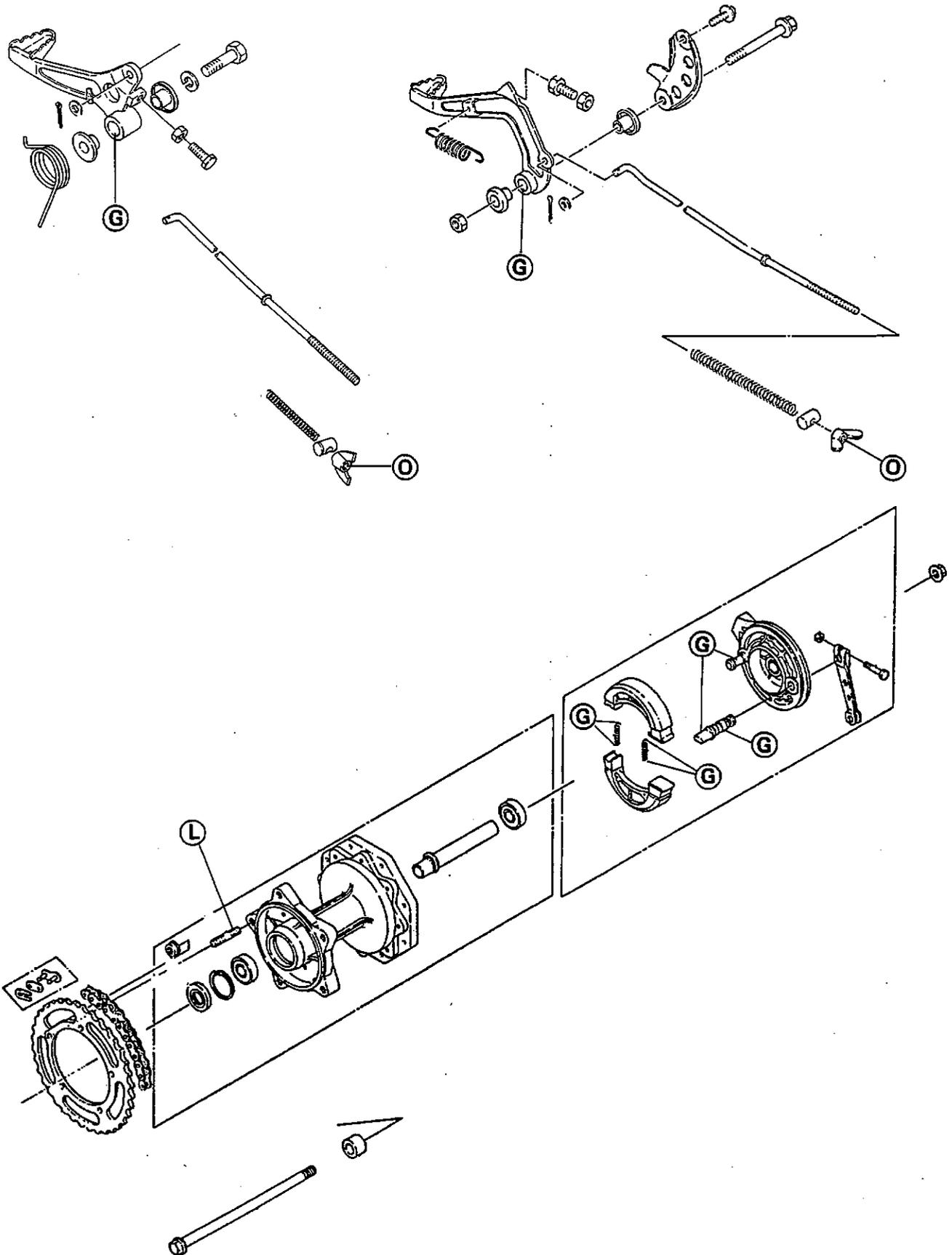
## Exploded View

### Front Drum Brake



**G : Apply high temperature grease.**  
**O : Apply oil.**

Rear Drum Brake



G: Apply high temperature grease.  
L: Apply a non-permanent locking agent.  
O Apply oil.





## 10-6 BRAKES

### Specifications

#### Drum Brake

Item	Standard	Service Limit
<b>Brake Adjustment:</b>		
Brake lever	4 - 5 mm	---
Brake pedal position	Adjustable (to suit rider)	---
Brake Pedal play	20 - 30 mm	---
Brake cam lever angle	80 - 90°	---
<b>Brake Shoes:</b>		
Brake shoe lining thickness	2.1 - 3.0 mm	1.2 mm
Brake shoe spring free length		
: Front	30.8 - 31.2 mm	32.8 mm
: Rear	32 - 33 mm	34.5 mm
<b>Brake Drum:</b>		
Brake drum inside diameter:		
KX60 : Front and rear	90.000 - 90.087 mm	90.75 mm
KDX80 : Front	94.000 - 94.087 mm	94.75 mm
: Rear	90.000 - 90.087 mm	90.75 mm
<b>Brake Panel:</b>		
Camshaft hole inside diameter	12.000 - 12.027 mm	12.18 mm
Camshaft diameter	11.957 - 11.984 mm	11.83 mm

#### Disc Brake

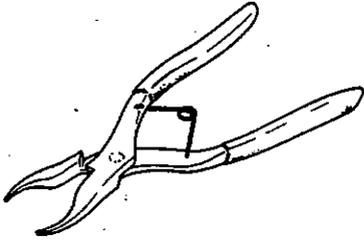
Item	Standard	Service Limit
<b>Brake Adjustment:</b>		
Brake lever play	Adjustable (to suit rider)	---
Brake pedal position	Adjustable (to suit rider)	---
Brake pedal play	Adjustable (to suit rider)	---
<b>Brake Pads:</b>		
Pad lining thickness:		
Front	3.7 mm	1 mm
Rear	4.2 mm	1 mm
<b>Brake Discs:</b>		
Disc thickness: Front and Rear	2.85 - 3.15 mm	2.5 mm
Disc runout	not more than 0.12 mm	0.3 mm
<b>Brake Fluid:</b>		
Recommended disc brake fluid:		
Grade	D.O.T.3	---
Brand	Atlas Extra Heavy Duty	---
	Shell Super Heavy Duty	---
	Texaco Super Heavy Duty	---
	Wagner Lockheed Heavy Duty	---
	Castrol Girling-Universal	---
	Castrol GT (LMA)	---
	Castrol Disc Brake Fluid	---

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**Special Tool**


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**Circlip Pliers: 57001-143**




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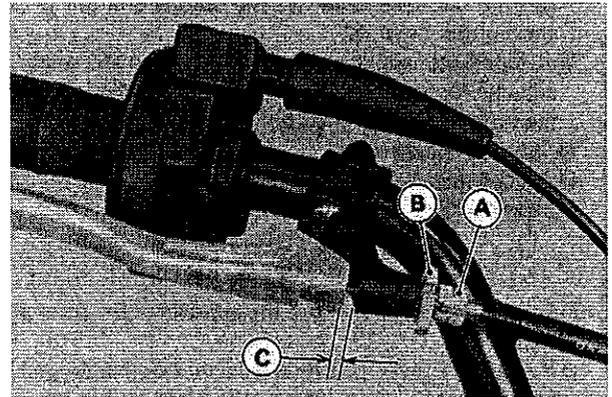
**Drum Brakes**


---

Brake lining wear, drum wear, and cable stretch cause the brakes to go out of adjustment, increasing lever and pedal play and decreasing braking effectiveness. Brake adjustment to compensate for this consists of correcting the cam lever angle, adjusting the front brake lever and rear brake pedal position and travel.

**Front Brake:**
***Brake Lever Inspection***

- Slide the front brake lever dust cover back.
- Check that the brake lever has free play when the brake is lightly applied.



A. Adjuster  
B. Locknut

C. 4–5 mm

**Brake Lever Free Play**

**Standard: 4 – 5 mm**

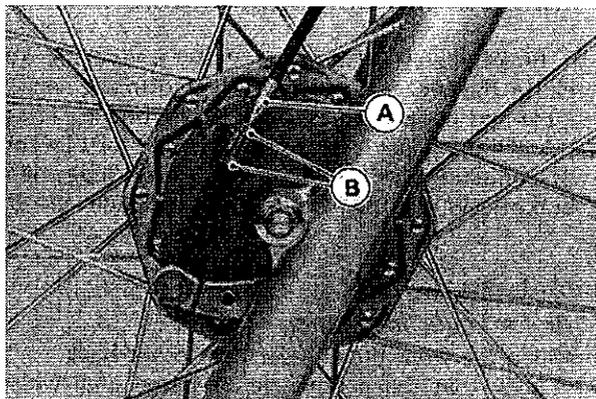
- ★If the lever has improper play, adjust it.
  - Rotate the wheel to check for brake drag.
  - Operate the lever a few times to see that it returns to its rest position immediately upon release.
  - Check braking effectiveness.
- ★If there is any doubt as to the condition of the brake, check the brake parts for wear or damage.

***Brake Lever Play Adjustment***

- Loosen the locknut at the front brake lever, screw the adjuster fully in, and tighten the locknut.

## 10-8 BRAKES

- Loosen the nuts at the lower end of the brake cable.



A. Adjuster

B. Nuts

- Turn the nuts at the lower end of the front brake cable so that the brake lever has the correct amount of play, and tighten the nuts.
- If sufficient adjustment cannot be made with the adjuster, complete the adjustment with the adjuster at the brake lever, and then tighten the locknut.
- Check for brake drag.
- Check braking effectiveness.
- Slide the dust cover back into place.

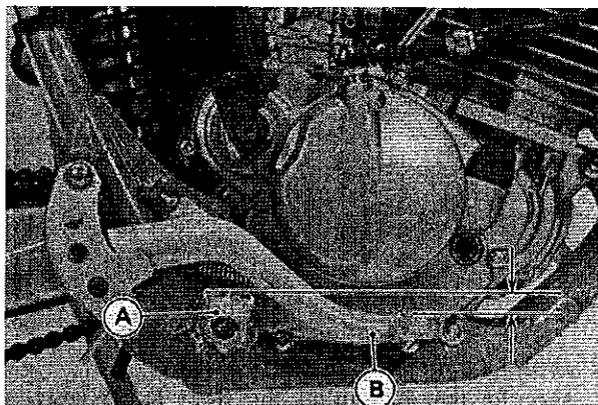
### NOTE

- For minor corrections, use the adjuster at the front brake lever.
- If the brake lever adjustment cannot be made with the adjuster at the brake lever or the brake panel, move the front brake cam lever to a new position on the brake camshaft.

### Rear Brake:

#### Brake Pedal Position Inspection/Adjustment

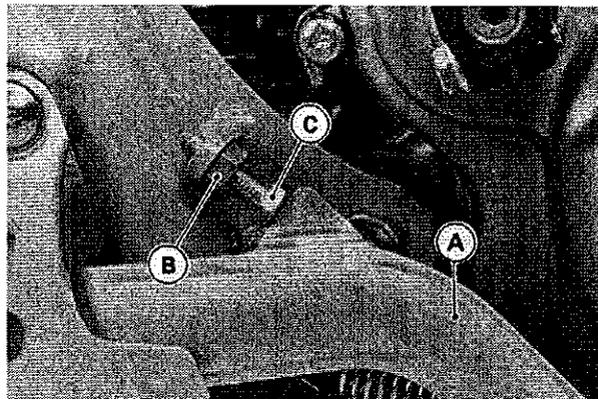
- With the brake pedal in the rest position, inspect the brake pedal position as shown. Adjust the pedal position to suit you.



A. Footpeg

B. Brake Pedal

- To adjust the pedal position, loosen the locknut, and turn the adjusting bolt, and then tighten the locknut.



A. Brake Pedal

B. Locknut

C. Bolt

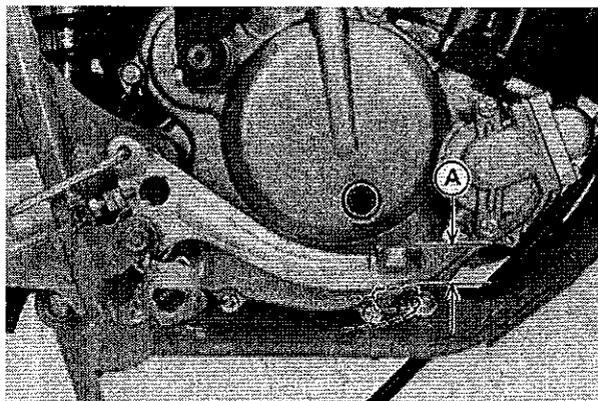
- After adjusting brake pedal position, check brake pedal free play, and adjust if necessary.

### NOTE

- If the pedal position cannot be adjusted by turning the adjusting bolt, the brake pedal may be deformed or incorrectly installed.

#### Brake Pedal Free Play Inspection

- Depress the rear brake pedal lightly by hand until the brake is applied.
- Measure the pedal travel. This is the free play.



A. Brake Pedal Free Play

- ★ If the rear brake pedal free play is incorrect, adjust it.

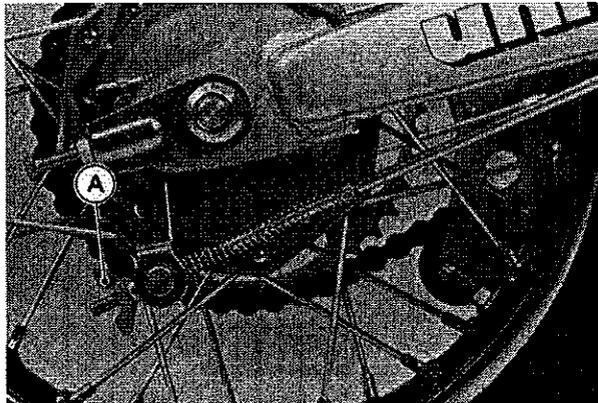
#### Brake Pedal Free Play

Standard: 20 – 30 mm

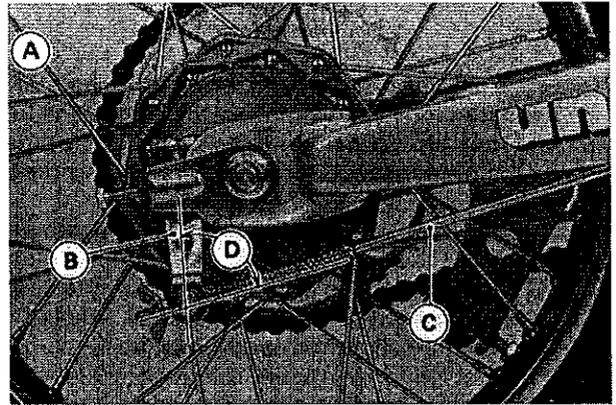
- Operate the pedal a few times to see that it returns to its rest position immediately upon release.
- Rotate the rear wheels to check for brake drag.
- Check braking effectiveness.
- ★ If there is any doubt as to the condition of the brake, check the brake parts for wear or damage.

**Brake Pedal Free Play Adjustment**

- Turn the adjuster at the rear brake until the brake pedal has the correct amount of play.



A. Adjuster



A. Rear Brake Panel    C. Brake Rod  
B. Cam Lever            D. 80 — 90°

- Adjust the rear brake pedal free play (see Rear Brake Pedal Free Play Adjustment).

**WARNING**

- A change in cam lever angle is caused by wear of internal brake parts. Whenever the cam lever angle is adjusted, also check for drag and proper operation.
- In case of doubt as to braking effectiveness, disassemble and inspect all internal brake parts. Worn parts could cause the brake to lock or fail.

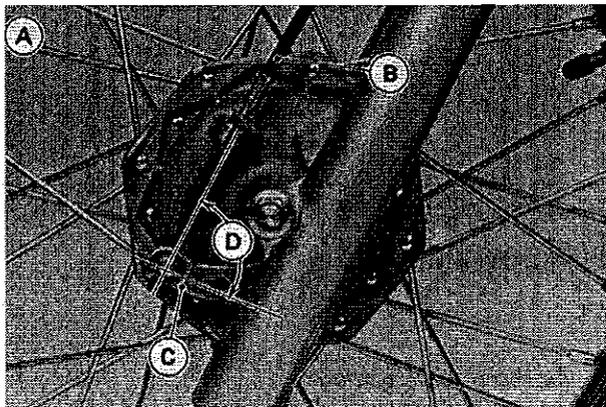
**Cam Lever Angle:**

**Cam Lever Angle Adjustment**

- Take off the cam lever, and mount it at a new position so that the cam lever angle is within the specified range when the brake is fully applied.

**Cam Lever Angle**

**Standard:            80 — 90°**

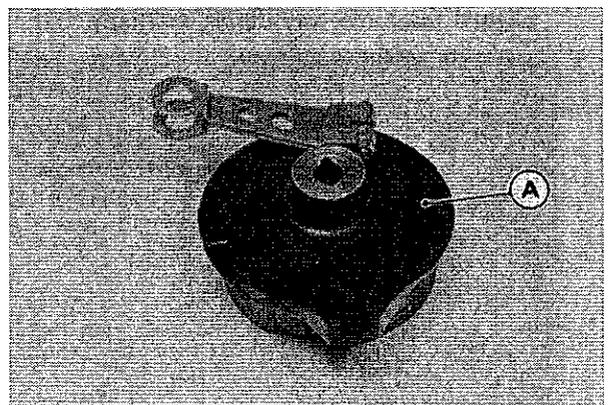


A. Front Brake Panel    C. Cam Lever  
B. Brake Cable            D. 80 — 90°

**Brake Removal/Disassembly:**

**Brake Removal**

- Remove the front and rear wheels (see Wheels/Tires chapter).
- Separate the brake panel.



A. Brake Panel

## 10-10 BRAKES

### WARNING

• Brake linings contain asbestos fiber. Inhalation of asbestos may cause serious scarring of the lungs and may promote other internal injury and illness, including cancer. Observe the following precautions when handling brake linings:

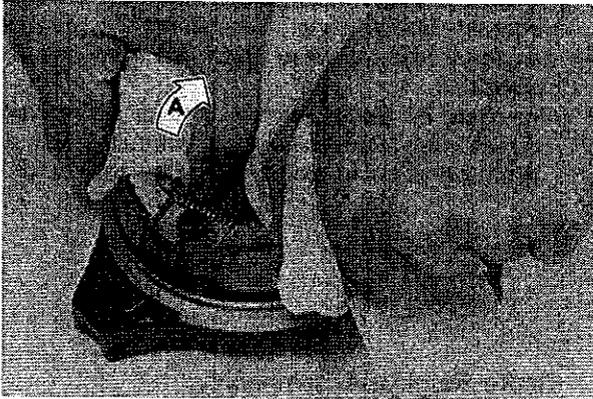
1. Never blow brake lining dust with compressed air.
2. If any components are to be cleaned, wash them with detergent, then immediately discard the cleaning solution and wash your hands.
3. Do not grind any brake lining material unless a ventilation hood is available and properly used.

### Brake Installation

- Installation is the reverse of removal. Note the following.
- Adjust the brake pedal free play.

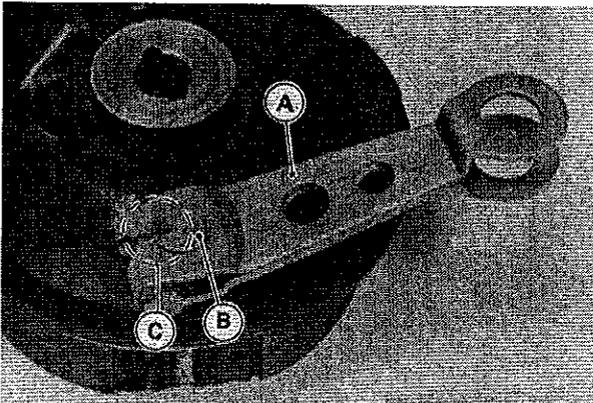
### Brake Panel Disassembly

- See WARNING in Brake Removal before operation.
- Hold the brake shoes, one in each hand with a clean cloth to protect the linings from grease and dirt.
- Pull up on the shoes to remove them from the panel.



A. Lift

- Remove the springs to separate the two shoes.
- Mark the camshaft and cam lever so that they can be aligned the same way during assembly.



A. Brake Cam Lever  
B. Camshaft

C. Align Mark

- Remove the brake cam lever.
- Pull the brake camshaft out from the inside. Do not lose the dust seal.

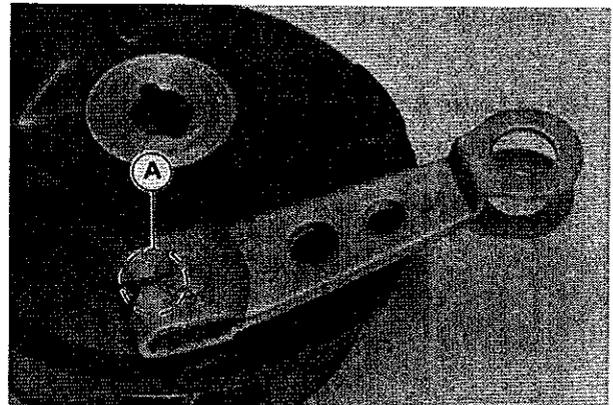
### Brake Panel Assembly

- See Brake Lubrication.
- Slip the brake camshaft through the panel.

### WARNING

• Put the brake camshaft back into the panel so the triangular mark on the cam surface points to the center of the panel. Improper installation will impair braking effectiveness.

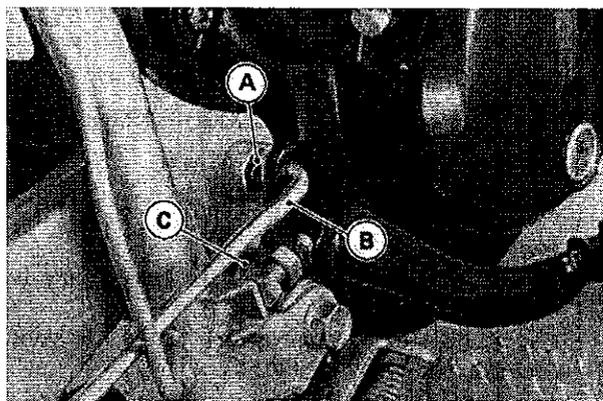
- Link the brake shoes together with the springs, and push them onto the panel in the reverse of removal.
- Put the dust seal over the end of the camshaft. Fit the cam lever so that the marks aligns.
- Put in the cam lever bolt, and tighten securely.
- Install the brake panel assembly.



A. Align Mark

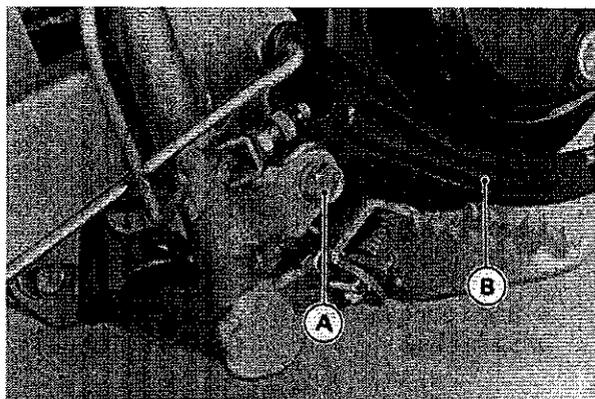
### Brake Pedal Removal

- Remove the following parts.  
Rear Brake Rod  
Brake Pedal Spring



A. Cotter Pin  
B. Rear Brake Rod  
C. Brake Pedal Spring

- Unscrew the brake pedal pivot bolt and remove the brake pedal.



A. Brake Pedal Pivot Bolt    B. Brake Pedal

**Brake Maintenance:**

**Brake Drum Wear**

- Remove the front and rear wheels (see *Wheels/Tires* chapter).
- Measure the inside diameter of the drum.
- Use calipers and measure at several points.

**Brake Drum Inside Diameter**

**KX60 (Front and Rear):**

Standard: 90.000 – 90.087 mm  
Service Limit: 90.75 mm

**KDX80:**

**Front:**

Standard: 94.000 – 94.087 mm  
Service Limit: 94.75 mm

**Rear:**

Standard: 90.000 – 90.087 mm  
Service Limit: 90.75 mm

- ★ If any measurement is greater than the service limit, replace the wheel hub.

- ★ If the drum is worn unevenly or scored, lightly turn the drum on a brake drum lathe or replace the wheel. Do not turn the drum beyond the service limit.

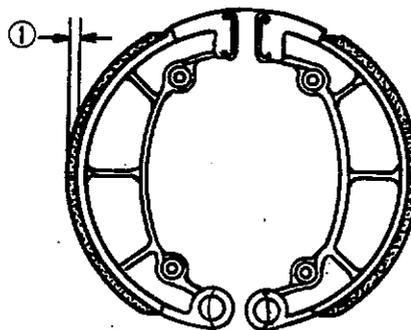
**Brake Shoe Lining Wear**

- See **WARNING** in *Brake Removal*, before operation.
- Remove the brake shoes.
- Measure the lining thickness.
- Use a calipers or scale and measure at several points as shown.

**Brake Shoe Lining Thickness**

Standard: 2.1 – 3.0  
Service Limit: 1.2 mm

**Brake Lining Measurement**



**1. Lining Thickness**

- ★ If any measurement is less than the service limit, replace both shoes as a set.
- ★ If the lining thickness is greater than the service limit, do the following before installing the shoes.
  - File or sand down any high spots on the surface of the lining.
  - Use a wire brush to remove any foreign particles from the lining.
  - Wash off any oil or grease with an oilless cleaning fluid such as trichloroethylene or acetone.

**▲ WARNING**

These cleaning fluid are usually highly flammable and harmful if breathed for prolonged periods. Be sure to heed the fluid manufacturer's warnings.

**Brake Shoe Spring Inspection**

- Measure the brake shoe springs free length with vernier calipers.
- If either is stretched beyond the service limit, replace both springs.

## 10-12 BRAKES

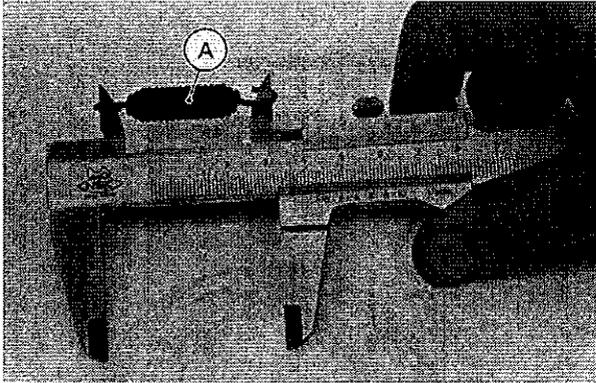
### Brake Shoe Spring Free Length

#### Front:

**Standard:** 30.8 — 31.2 mm  
**Service Limit:** 32.8 mm

#### Rear:

**Standard:** 32 — 33 mm  
**Service Limit:** 34.5 mm



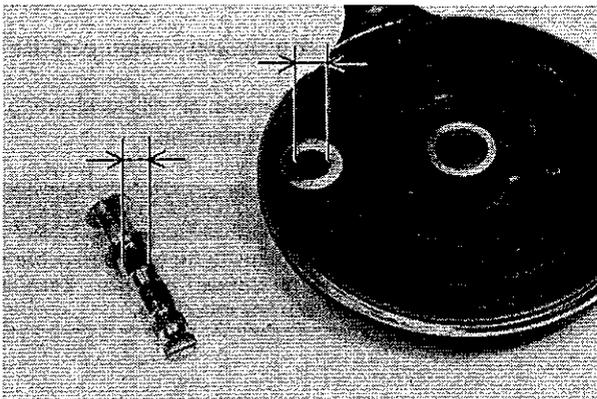
A. Brake Shoe Spring

### Brake Camshaft and Camshaft Hole Wear

- Remove the brake camshaft.
- Measure the shaft diameter.
- Use a micrometer at the point shown.
- ★If any measurement is less than the service limit, replace the camshaft.

#### Brake Camshaft Diameter

**Standard:** 11.957 — 11.984 mm  
**Service Limit:** 11.83 mm



- Measure the inside diameter of the camshaft hole in the brake panel.
- Use a small hole gauge in several directions inside the hole, and then measure the small hole gauge with a micrometer.

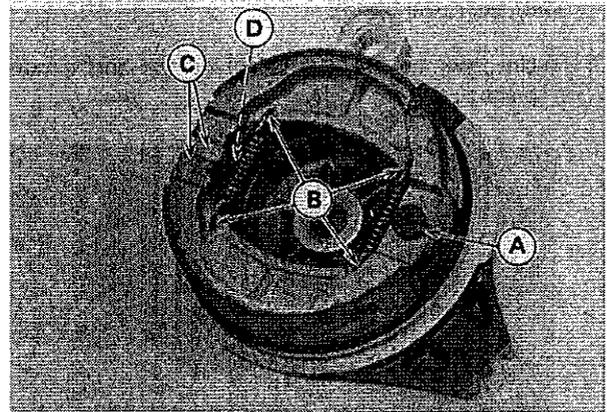
- ★If any measurement is larger than the service limit, replace the brake panel.

#### Brake Camshaft Hole Inside Diameter

**Standard:** 12.000 — 12.027 mm  
**Service Limit:** 12.18 mm

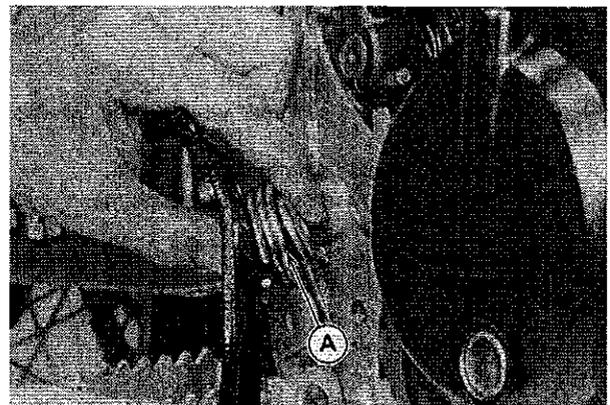
### Brake Lubrication

- Clean all old grease out of the brake parts with a cloth.
- Apply high-temperature grease to the following:
  - Brake Shoe Anchor Pin
  - Spring Ends
  - Cam Surfaces
  - Camshaft Groove



A. Brake Shoe Anchor Pin      C. Cam Surfaces  
B. Spring End                      D. Camshaft Groove

- Lubricate the brake pedal by applying multi-purpose grease to the pedal pivot shaft groove.



A. Apply grease.

- Clean any excess grease from the part before assembly.
- Oil the following lightly:
  - Brake adjuster:

Disc Brakes

**WARNING**

When working with the disc brake, observe the precautions listed below.

1. Never reuse old brake fluid.
2. Do not use fluid from a container that has been left unsealed or that has been open for a long time.
3. Do not mix two types and brands of fluid for use in the brake. This lowers the brake fluid boiling point and could cause the brake to be ineffective. It may also cause the rubber brake parts to deteriorate.
4. Don't leave the reservoir cap off for any length of time to avoid moisture contamination of the fluid.
5. Don't change the fluid in the rain or when a strong wind is blowing.
6. Except for the disc pads and discs, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol for cleaning brake parts. Do not use any other fluid for cleaning these parts. Gasoline, motor oil, or any other petroleum distillate will cause deterioration of the rubber parts. Oil spilled on any part will be difficult to wash off completely and will eventually reach and break down the rubber used in the disc brake.
7. When handling the disc pads or disc, be careful that no disc brake fluid or any oil gets on them. Clean off any fluid or oil that inadvertently gets on the pads or disc with a high flash point solvent. Do not use one which will leave an oily residue. Replace the pads with new ones if they cannot be cleaned satisfactorily.
8. Brake fluid quickly ruins painted surfaces; any spilled fluid should be completely wiped up immediately.
9. If any of the brake line fittings or the bleed valve is opened at any time, the **AIR MUST BE BLED FROM THE BRAKE.**

**Brake Adjustment:**

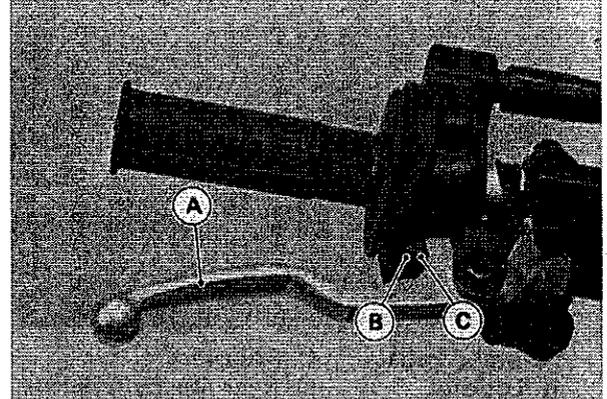
*Brake Lever/Pedal Free Play Inspection/Adjustment*

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, brake pedal position and pedal 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).

*Front Brake Lever Play Adjustment*

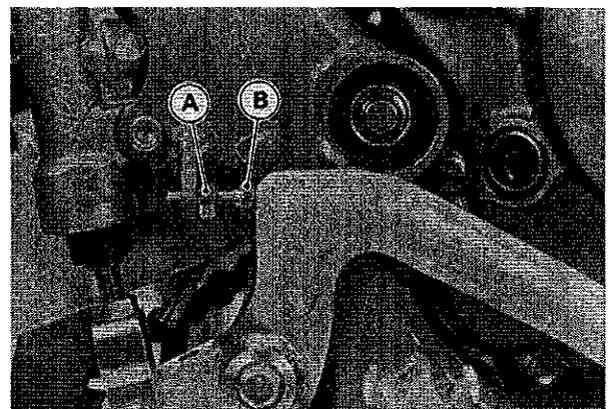
- Adjust the front brake lever to suit you.
- Loosen the adjuster locknut and turn the adjuster to either side.
- After adjustment, tighten the locknut securely.



A. Brake Lever  
B. Adjuster  
C. Locknut

*Rear Brake Pedal Position Adjustment*

- Adjust the rear brake pedal position to suit you.
- Loosen the locknut, turn the adjusting bolt, and then tighten the locknut.

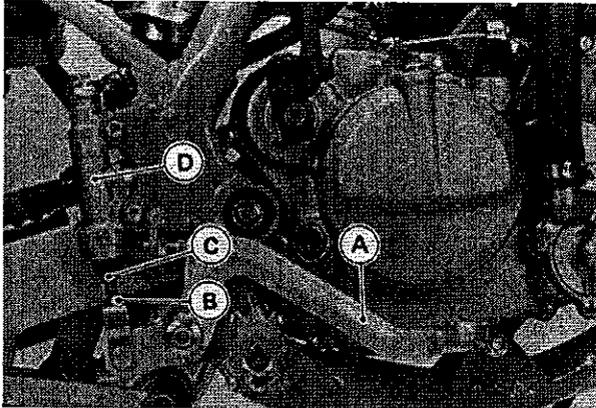


A. Locknut  
B. Adjusting Bolt

## 10-14 BRAKES

### Rear Brake Pedal Play Adjustment

- Adjust the rear brake pedal play to suit you.
- Loosen the adjuster locknut and turn the adjuster on the rear master cylinder.
- After adjustment, tighten the locknut securely.



A. Brake Pedal  
B. Locknut  
C. Adjuster  
D. Rear Master Cylinder

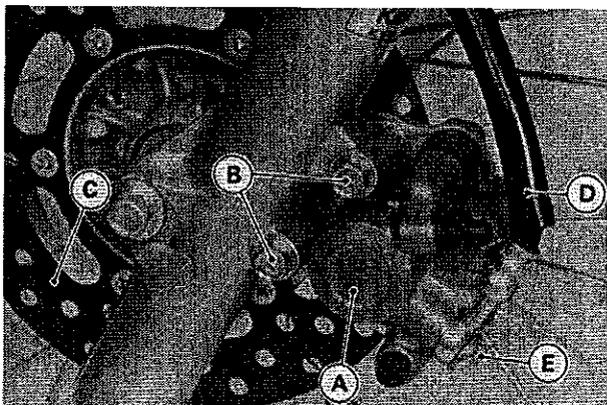
### Caliper:

#### Caliper Removal

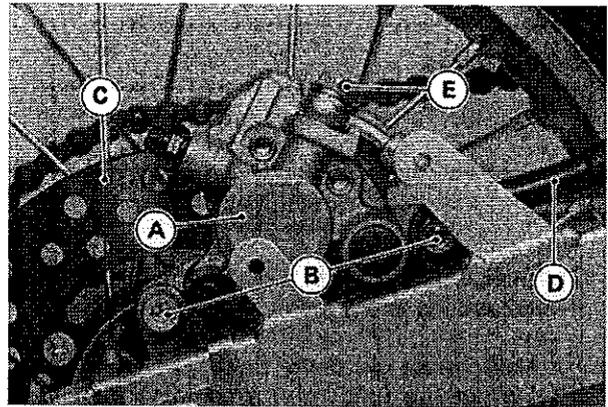
- Loosen the banjo bolt at the brake hose lower end, and tighten it loosely.
- Unscrew the mounting bolts, and remove the caliper from the disc.
- Unscrew the banjo bolt and remove the brake hose from the caliper (see Brake Hose Removal/Installation).
- There is a flat washer on each side of the hose fitting. If the caliper is to be disassembled after removal and if compressed air is not available, remove the piston using the following steps before disconnecting the brake hose from the caliper.
- Remove the pads.
- Pump the brake lever or pedal to remove the caliper piston.

#### NOTE

- Immediately wipe up any brake fluid that spills.



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



A. Rear Caliper  
B. Caliper Mounting Bolts  
C. Brake Disc  
D. Brake Hose  
E. Banjo Bolt

#### Caliper Installation Notes

- Installation is the reverse of removal.
- Tighten the caliper mounting bolts to the specified torque.

#### Tightening Torque:

**25 N-m (2.5 kg-m, 18 ft-lb)**

- Use a new flat washer on each side of the brake hose fitting, and tighten the banjo bolt to the specified torque.

#### Tightening Torque:

**25 N-m (2.5 kg-m, 18 ft-lb)**

- Check the brake fluid level in the reservoir, and bleed the brake line (see Bleeding the Brake Line).
- Check the brake for weak braking power, brake drag, and fluid leakage by operating the brake lever/pedal.

#### Caliper Disassembly

- Remove the pads, spring, and dust seal (see Pad Removal).
- Using compressed air, remove the piston.
- Cover the caliper opening with a clean, heavy cloth.
- Remove the piston 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.

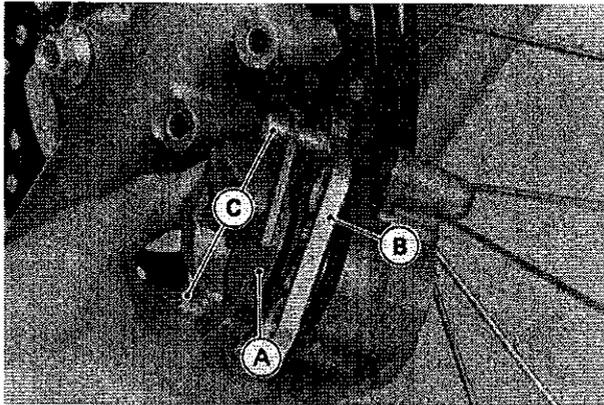


## 10-16 BRAKES

### Brake Pads;

#### Pad Removal

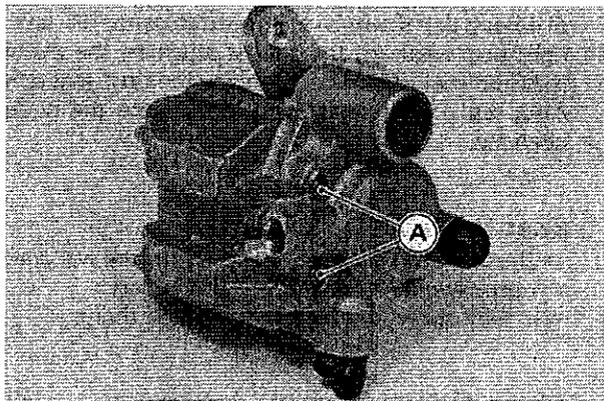
- Remove the caliper from the disc, and take out the piston side pad from the caliper holder.
- Push the caliper holder toward the piston, and then remove the pad from the caliper holder shaft.



- A. Pad  
B. Caliper Holder  
C. Holder Shafts

#### NOTE

- When removing the rear disc pad, unscrew the Allen bolts first.



- A. Allen Bolts

#### 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.

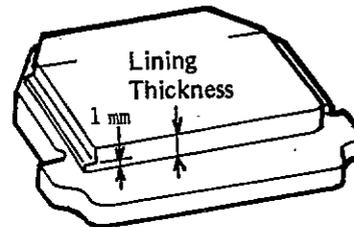
#### WARNING

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

#### Pad Inspection

- Check the lining thickness and condition of the pads in each caliper.
- ★ If either pad is damaged, replace both pads in the caliper as a set.
- ★ If the lining thickness of either pad is less than the service limit, replace both pads in the caliper as a set.

#### Lining Thickness Measurement



#### Pad Lining Thickness (mm)

	Front	Rear
Standard	3.7	4.2
Service Limit	1	1

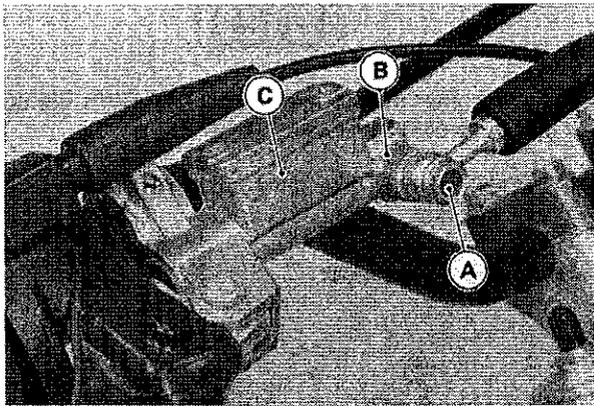
#### Master Cylinder:

#### CAUTION

- Brake fluid quickly ruins painted or plated surfaces; any spilled fluid should be completely wiped up immediately.

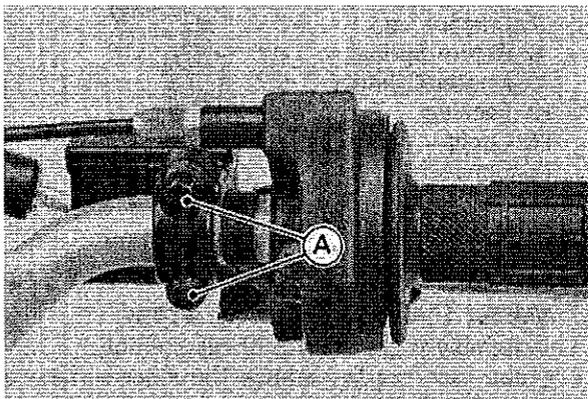
#### Front Master Cylinder Removal

- Remove the banjo bolt to disconnect the upper brake hose from the master cylinder. There is a flat washer on each side of the hose fitting.



A. Banjo Bolt  
B. Master Cylinder  
C. Reservoir

- When removing the brake hose, temporarily secure the end of the brake hose to some high place to keep fluid loss to a minimum.
- Unbolt the clamp bolts, and take off the master cylinder as an assembly with the reservoir and brake lever.



A. Clamp Bolts

**Front Master Cylinder Installation Notes**

- Installation is the reverse of removal.
- Tighten the upper clamp bolt first and then tighten the lower clamp bolt. There will be a gap at the lower part of the clamp after tightening.
- Use a new flat washer on each side of the brake hose fitting, and tighten the banjo bolt to the specified torque.

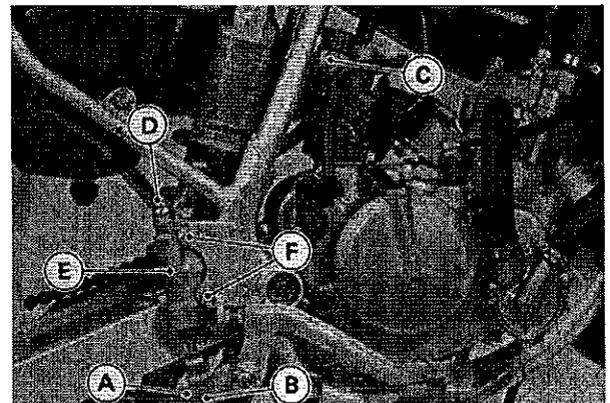
**Tightening Torque:**

**25 N-m (2.5 kg-m, 18 ft-lb)**

- Bleed the brake line after master cylinder installation (see Bleeding the Brake Line).
- Check the brake for weak braking power, brake drag, and fluid leakage.

**Rear Master Cylinder Removal**

- Remove the reservoir mounting bolt.
- Remove the cotter pin, and pull out the joint pin.
- Unscrew the banjo bolt to disconnect the brake hose from the master cylinder. There is a flat washer on each side of the hose fitting.



A. Cotter Pin  
B. Joint Pin  
C. Reservoir Mounting Bolt  
D. Banjo Bolt  
E. Master Cylinder  
F. Master Cylinder Mounting Bolts

- When removing the brake hose, temporarily secure the end of the brake hose to some high place to keep fluid loss to a minimum.
- Unscrew the master cylinder mounting bolts, and remove the master cylinder with the reservoir.
- Unscrew the reservoir cap (the diaphragm comes off with the reservoir cap) and pour the brake fluid into a container.
- Remove the reservoir and its hose from the master cylinder.

**Rear Master Cylinder Installation Notes**

- Installation is the reverse of removal.
- Tighten the master cylinder mounting bolts securely.
- Use a new flat washer on each side of the brake hose fitting, and tighten the banjo bolts to the specified torque.

**Tightening Torque:**

**25 N-m (2.5 kg-m, 18 ft-lb)**

## 10-18 BRAKES

- Tighten the reservoir mounting bolt securely.
- Bleed the brake line after master cylinder installation (see Bleeding the Brake Line).
- Check the brake for weak braking power, brake drag, and fluid leakage.
- Check the brake pedal position.

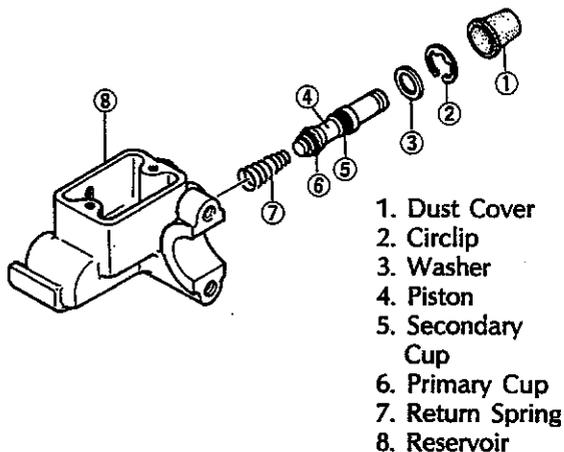
### Front Master Cylinder Disassembly

- Remove the front master cylinder (see Front Master Cylinder Removal)
- Remove the reservoir cap and diaphragm, and pour the brake fluid into a container.
- Unscrew the locknut and pivot bolt, and remove the brake lever.
- Push the dust cover out of place, and using circlip pliers (special tool: 57001-143), remove the circlip.
- Remove the washer, and pull out the piston, secondary cup, primary cup, and return spring.

### CAUTION

- Do not remove the secondary cup from the piston since removal will damage it.

### Front Master Cylinder



1. Dust Cover
2. Circlip
3. Washer
4. Piston
5. Secondary Cup
6. Primary Cup
7. Return Spring
8. Reservoir

### Rear Master Cylinder Disassembly

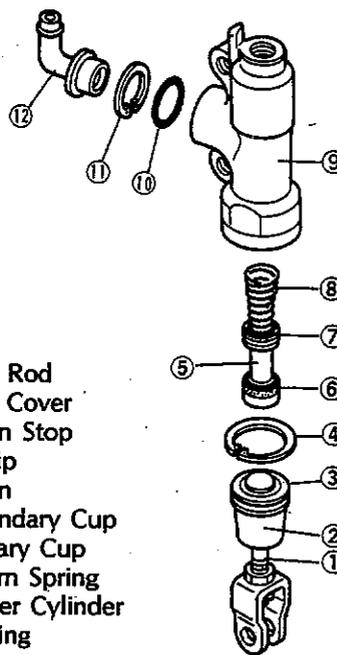
- Remove the rear master cylinder (see Rear Master Cylinder Removal).
- Slide the dust cover on the push rod out of place, and using circlip pliers (special tool: 57001-143), remove the circlip.
- Pull out the push rod with the piston stop.
- Take off the piston, secondary cup, primary cup, and return spring.

### CAUTION

- Do not remove the secondary cup from the piston since removal will damage it.

- Remove the circlip, and take off the connector and packing.

### Rear Master Cylinder



1. Push Rod
2. Dust Cover
3. Piston Stop
4. Circlip
5. Piston
6. Secondary Cup
7. Primary Cup
8. Return Spring
9. Master Cylinder
10. Packing
11. Circlip
12. Connector

### Master Cylinder Assembly Notes

- Assembly is the reverse of disassembly.
- Take care not to damage the inner surface of the cylinder, or the piston.
- Clean all parts with brake fluid or alcohol, and apply brake fluid to the inner surface of the cylinder before assembly.
- Tighten the brake lever pivot bolt locknut securely.

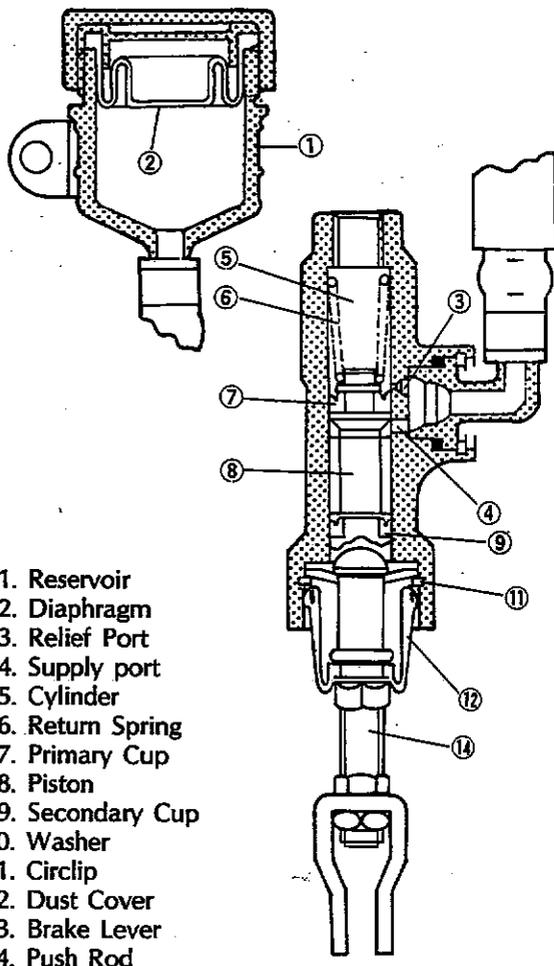
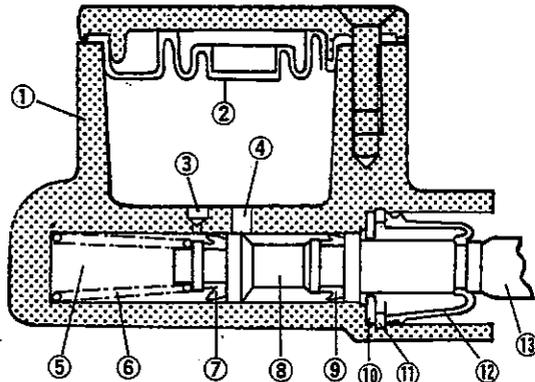
### Master Cylinder Inspection (Visual Inspection)

- Disassemble the front and rear master cylinders.
- Check that there are no scratches, rust or pitting on the inside of each master cylinder and on the outside of each piston.
- ★ If a master cylinder or piston shows any damage, replace them.
- Inspect the primary cups and secondary cups.

- ★ If a cup is worn, damaged, softened (rotted), or swollen, the piston assembly should be replaced to renew the cups.
- ★ If fluid leakage is noted at the brake lever, the piston assembly should be replaced to renew the cup.
  - Check the dust covers for damage.
  - ★ If they are damaged, replace them.

- Check that the relief and supply ports are not plugged.
- ★ If the small relief port becomes plugged, the brake pads will drag on the disc. Blow the ports clean with compressed air.
- Check the piston return springs for any damage.
- ★ If a spring is damaged, replace it.
- Check the packing in the rear master cylinder for damage.
- ★ If a packing is damaged, replace it.

**Front and Rear Master Cylinder**



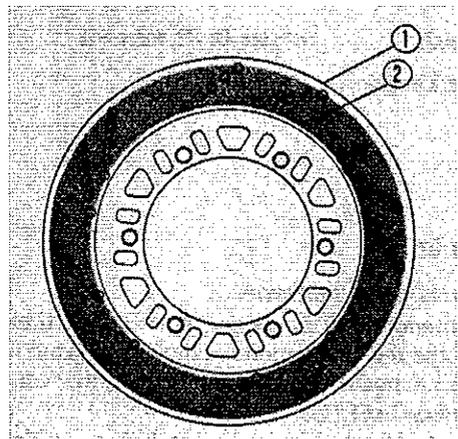
1. Reservoir
2. Diaphragm
3. Relief Port
4. Supply port
5. Cylinder
6. Return Spring
7. Primary Cup
8. Piston
9. Secondary Cup
10. Washer
11. Circlip
12. Dust Cover
13. Brake Lever
14. Push Rod

**Brake Disc:**

*Disc Inspection*

- Visually inspect the disc.
- ★ If it is scratched or damaged, replace the disc.
- Measure the thickness of each disc at the point where it has worn the most.
- ★ Replace the disc if it has worn past the service limit.

**Disc Thickness Measurement**



1. Disc
2. Measuring Area

**Disc Thickness**

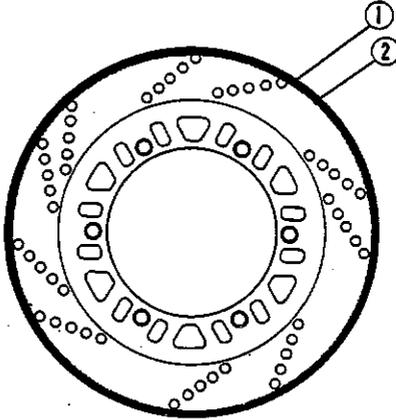
**Standard:** 2.85 – 3.15 mm  
**Service Limit:** 2.5 mm

- Place a stand or block under the motorcycle so that the front/rear wheel is raised off the ground.
- Set up a dial gauge against the disc as illustrated.
- For the front disc, turn the handlebar fully to one side.

## 10-20 BRAKES

- Rotate the wheel to measure disc runout. The difference between the highest and lowest dial readings is the amount of runout.
- ★ If disc runout exceeds the service limit, replace the disc.

### Disc Runout Measurement



1. Disc
2. Measuring Area

### Disc Runout

<b>Standard:</b>	<b>under 0.12 mm</b>
<b>Service Limit:</b>	<b>0.3 mm</b>

### Brake Fluid:

#### Brake Fluid Requirement

Recommended fluids are given in the table below. If none of the recommended brake fluids are available, use extra heavy-duty brake fluid only from a container marked D.O.T.3.

#### Recommended Disc Brake Fluid

<b>Grade</b>	<b>D.O.T.3.</b>
<b>Brand</b>	Atlas Extra Heavy Duty
	Sheel Super Heavy Duty
	Texaco Super Heavy Duty
	Wagner Lockheed Heavy Duty
	Castrol Girling-Universal
	Castrol GT (LMA)
	Castrol Disc Brake Fluid

### Brake Fluid Level Inspection

In accordance with the Periodic Maintenance Chart, inspect the brake fluid level in the front and rear brake fluid reservoirs.

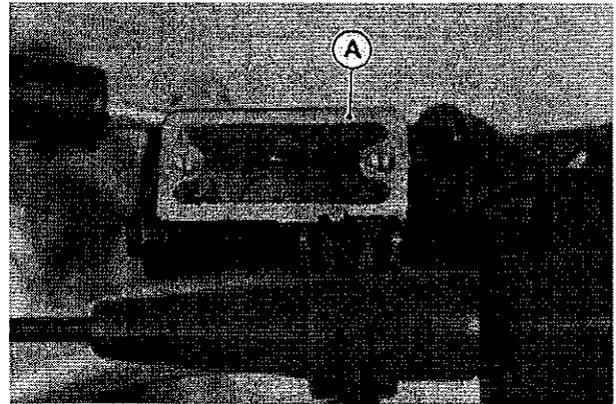
- Check the brake fluid level in the reservoir.

### NOTE

• Hold the reservoir horizontal when checking brake fluid level.

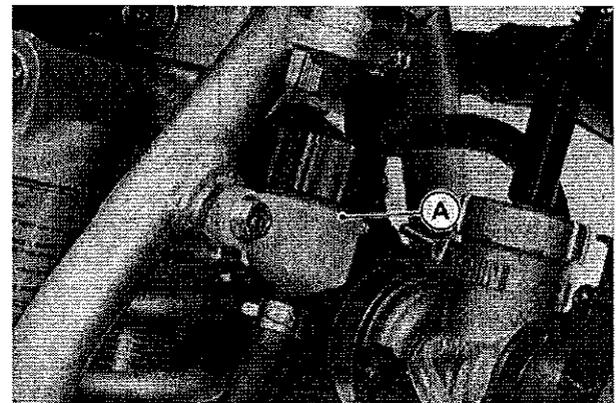
- ★ The front and rear reservoirs must be kept more than half full with brake fluid. If the amount of brake fluid is insufficient, add brake fluid.

### Front Brake Fluid Reservoir



A. Front Reservoir

### Rear Brake Fluid Reservoir



A. Rear Reservoir

### Brake Fluid Change

In accordance with the Periodic Maintenance Chart, change the brake fluid. The brake fluid should also be changed if it becomes contaminated with dirt or water.

#### Changing Brake Fluid:

- Level the master cylinder brake fluid reservoir.
- Remove the rubber cap on the bleed valve.
- Attach a clear plastic hose to the bleed valve on the caliper; and run the other end of the hose into a container.
- Open the bleed valve (counterclockwise to open).
- Pump the brake lever or pedal until all the fluid is drained from the line.
- Close the bleed valve.
- Remove the reservoir cap.
- Fill the reservoir with fresh specified brake fluid.

#### WARNING

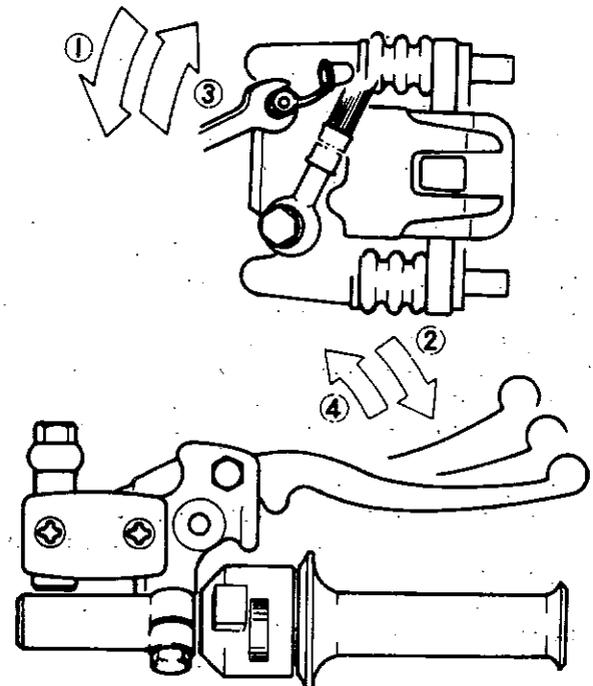
- Do not mix two brands of fluid. Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that is already in the reservoir are unknown.

- Install the reservoir cap.
- Open the bleed valve, apply the brake with the brake lever or pedal.
- Close the valve with the brake held applied, and then quickly release the lever or pedal.
- Repeat this operation until the brake line is filled and fluid starts coming out of the plastic hose.

#### NOTE

- Replenish the fluid in the reservoir as often as necessary to keep it from running completely out.
- Bleed the air from the lines (see Bleeding the Brake Line).

### Filling up the Brake Line



1. Open the bleed valve.
2. Apply the brake and hold it.
3. Close the bleed valve with the brake held applied.
4. Then quickly release the brake.

### Bleeding the Brake Line

The brake fluid has a very low compression coefficient so that almost all movement of the brake lever or pedal is transmitted directly to the caliper for braking action. Air, however, is easily compressed. When air enters the brake lines, brake lever or pedal movement will be partially used in compressing the air. This will make the lever or pedal feel spongy, and there will be a loss in braking power.

Bleed the air from the brake whenever brake lever or pedal action feels soft or spongy, after the brake fluid is changed, or whenever a brake line fitting has been loosened for any reason.

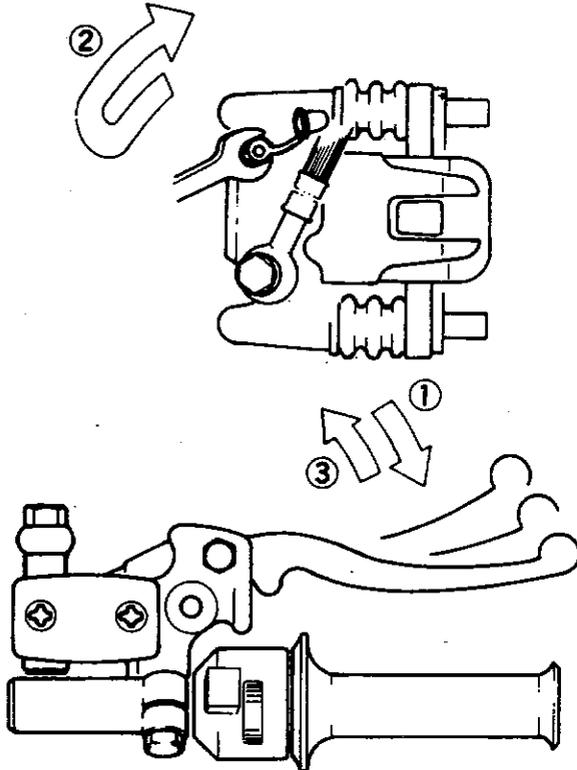
- Remove the reservoir cap, and check that there is plenty of fluid in the reservoir.

## 10-22 BRAKES

### NOTE

- The fluid level must be checked several times during the bleeding operation and replenished as necessary.
- If the fluid in the reservoir runs completely out any time during bleeding, the bleeding operation must be done over again from the beginning since air will have entered the line.
- With the reservoir cap off, slowly pump the brake lever or pedal several times until no air bubbles can be seen rising up through the fluid from the holes at the bottom of the reservoir. This bleeds the air from the master cylinder end of the line.
- Install the reservoir cap, and connect a clear plastic hose to the bleed valve at the caliper.
- Run the other end of the plastic hose into a container.
- Pump the brake lever or pedal a few times until it becomes hard and then, holding the lever or pedal squeezed, quickly open (turn counterclockwise) and close the bleed valve.
- Release the brake.
- Repeat this operation until no more air can be seen coming out into the plastic hose.

### Bleeding the Brake Line



1. Hold the brake applied.
2. Quickly open and close the bleed valve with the brake held applied.
3. Release the brake.

- Remove the clear plastic hose.
- Tighten the bleed valve to the specified torque, and install the rubber cap.

### Tightening Torque :

**8N-m (0.8 kg-m, 69 in-lb)**

- Check that the brake fluid is filled to the upper level line marked in the reservoir (with the master cylinder held level).
- After bleeding is done, check the brake for weak braking power, brake drag, and fluid leakage.

### Brake Hose:

#### Brake Hose Removal/Installation Notes

- When removing the brake hose, take care not to spill the brake fluid on the frame or other painted parts.
- When removing the brake hose, temporarily secure the end of the brake hose to some high place to keep fluid loss to a minimum.

### CAUTION

- Brake fluid quickly ruins painted or plated surfaces; any spilled fluid should be completely wiped up immediately.

- There is a flat washer on each side of the brake hose fitting. Replace them with new ones during installation.
- When installing the hoses, avoid sharp bending, kinking, flattening or twisting, and route the hoses according to the Hose Routing section in the General Information chapter.
- Tighten the banjo bolts at the hose fittings to the specified torque.

### Tightening Torque:

**25N-m (2.5 kg-m, 18 ft-lb)**

- Bleed the brake line after installing the brake hose (see Bleeding the Brake Line).

### Brake Hose Inspection

- The high pressure inside the brake line can cause fluid to leak or the hose to burst if the line is not properly maintained. Bend and twist the rubber hose while examining it.
- ★Replace it if any cracks or bulges are noticed.

# Suspension

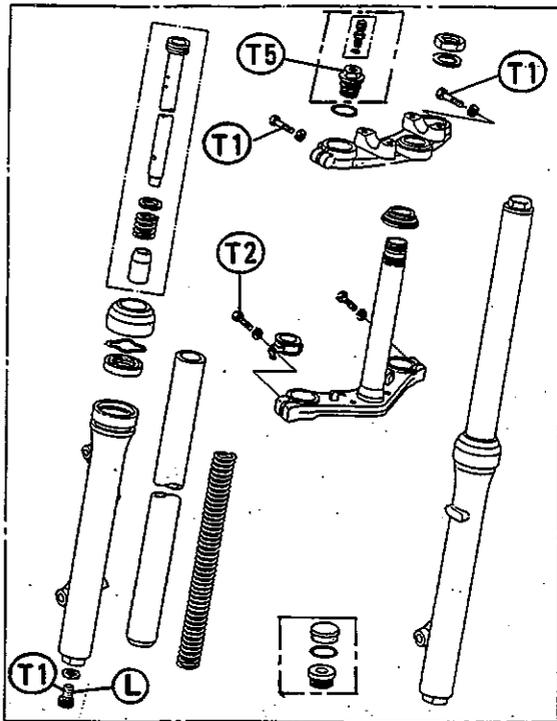
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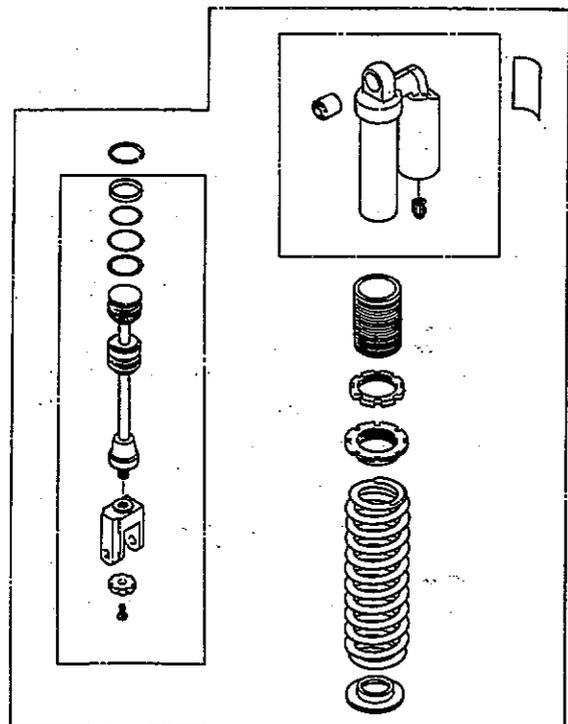
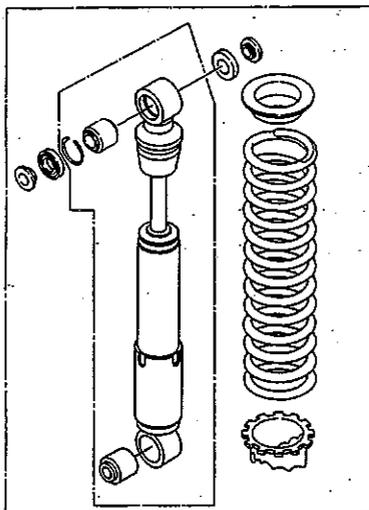
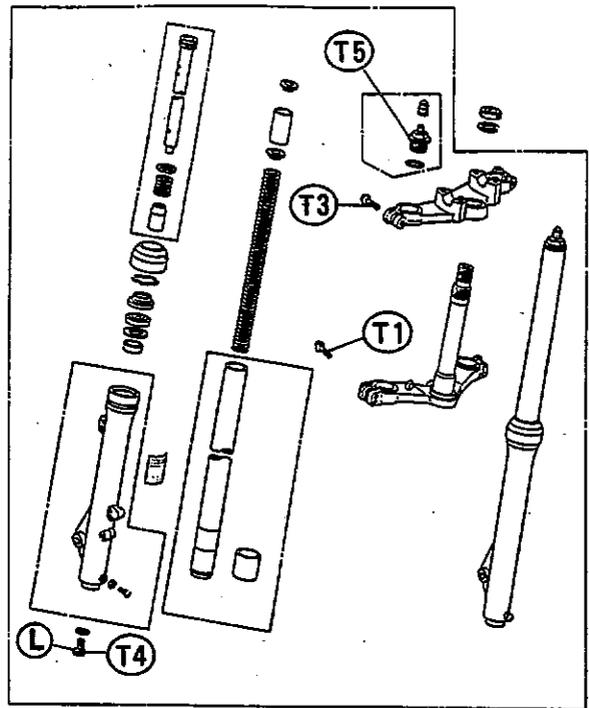
# 11-2 SUSPENSION

## Exploded View

**KX60, KDX80:**



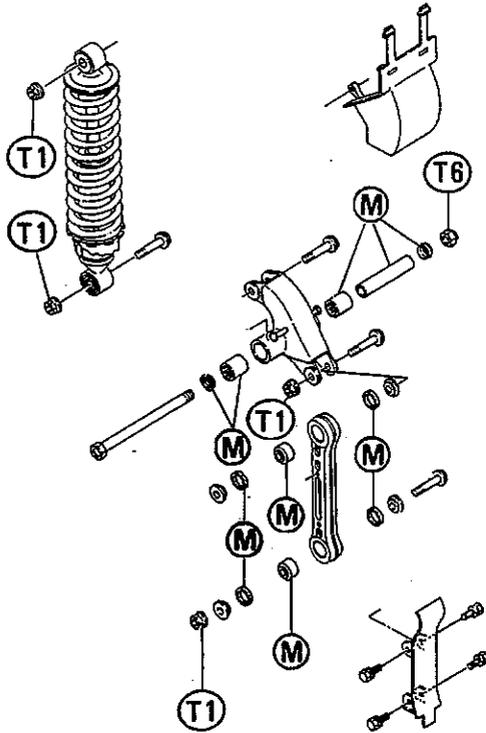
**KX80:**



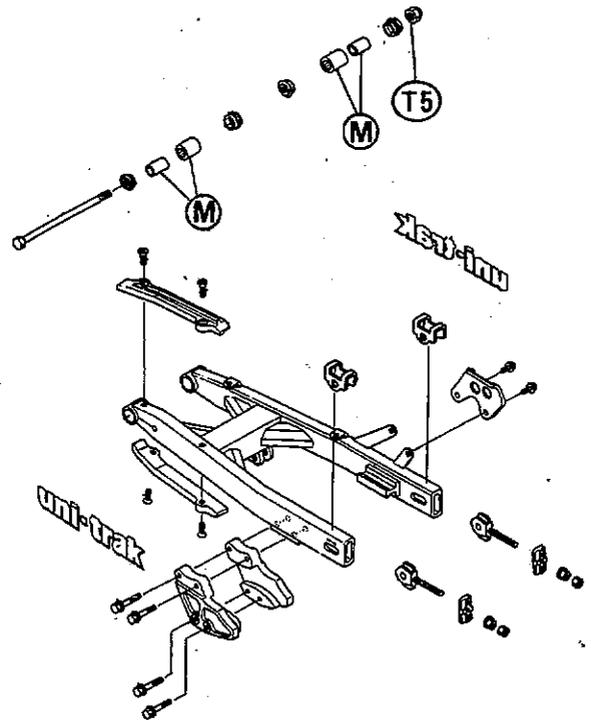
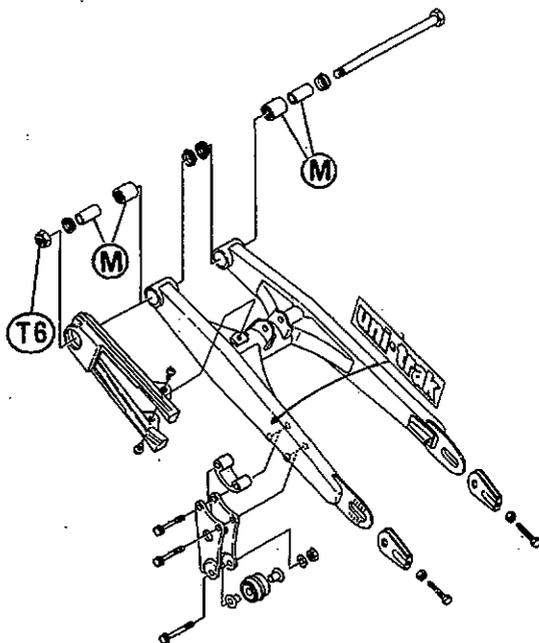
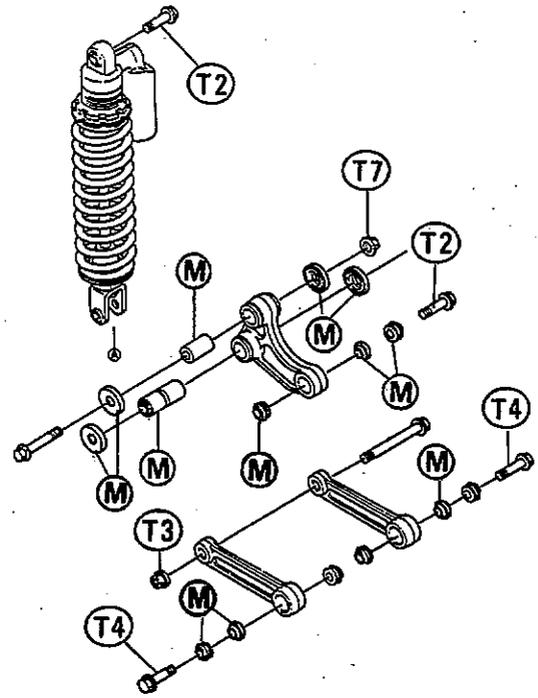
**L** : Apply a non-permanent locking agent to the threads.

- T1** : 20 N-m (2.0 kg-m, 14.5 ft-lb)
- T2** : 25 N-m (2.5 kg-m, 18 ft-lb)
- T3** : 17 N-m (1.7 kg-m, 12 ft-lb)
- T4** : 29 N-m (3.0 kg-m, 22 ft-lb)
- T5** : 23 N-m (2.3 kg-m, 16.5 ft-lb)

**KX60, KDX80:**



**KX80:**



**M** : Apply plenty of molybdenum disulfide grease.

**T1**: KX60 – 49 N-m (5.0 kg-m, 36 ft-lb)  
 KDX80 – 54 N-m (5.5 kg-m, 40 ft-lb)

**T2**: 54 N-m (5.5 kg-m, 40 ft-lb)

**T3**: 59 N-m (6.0 kg-m, 43 ft-lb)

**T4**: 34 N-m (3.5 kg-m, 25 ft-lb)

**T5**: 69 N-m (7.0 kg-m, 51 ft-lb)

**T6**: KX60—69 N-m (7.0 kg-m, 51 ft-lb)

KDX80—59 N-m (6.0 kg-m, 43 ft-lb)

**T7**: 49 N-m (5.0 kg-m, 36 ft-lb)

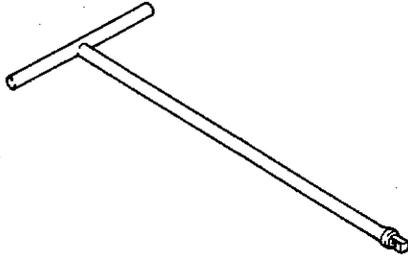
## 11-4 SUSPENSION

### Specifications

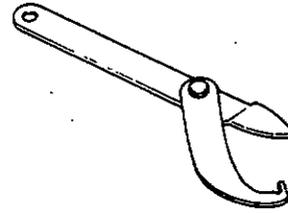
Item	Standard	Service Limit
<b>Front Fork:</b> Air pressure: KX60, KX80  Oil viscosity: KX60, KDX80 KX80 Oil capacity: KX60 KX80-L, M KX80-N, P KDX80  Oil level: (fully compressed, spring removed) KX60 KX80-L, M KX80-N, P KDX80  Fork spring free length: KX60 KX80-L, M KX80-N, P KDX80	Atmospheric pressure  SHOWA SS8 or SAE 5W20 KAYABA G-10 or SAE 10W  181 ± 2.5 mL 333 ± 3 mL 352 ± 3 mL 170 ± 2.5 mL  132 ± 5 mm 115 ± 5 mm 100 ± 5 mm 143 ± 5 mm  487.9 mm 497.5 mm 470 mm 547.5 mm	(Maximum air pressure) 40 kPa (0.4 kg/cm <sup>2</sup> , 6psi) --- --- --- --- --- ---  (adjustable range) 100 – 165 mm 90 – 145 mm 90 – 130 mm 110 – 176 mm  478 mm 487 mm 461 mm 536 mm
<b>Rear Suspension:</b> Rear Shock Absorber: KX60, KDX80: (Spring adjusting sleeve position)  KX80: Rebound damping: Spring preload: (adjusting nut position from the center of the upper mounting hole) KX80-L, M KX80-N, P Gas Reservoir (KX80 only) Compression damping: Gas pressure:	---  ---  83 mm 86 mm  --- 1000 kPa (10 kg/cm <sup>2</sup> , 142 psi)	(adjustable range) 1 – 5 (adjustable range) 1 – 4  73 – 96 mm 76 – 96 mm (adjustable range) 1 – 4 1000–1500 kPa (10–15 kg/cm <sup>2</sup> , 142–213 psi)

.....  
**Special Tools**  
.....

**Front Fork Cylinder Holder Handle: 57001-183**



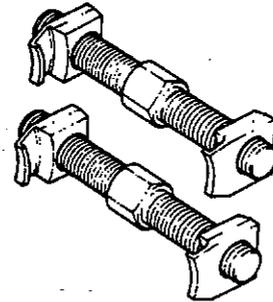
**Hook Wrench: 57001-1100**



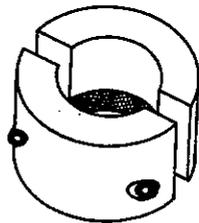
**Front Fork Cylinder Holder Adapter: 57001-1257**



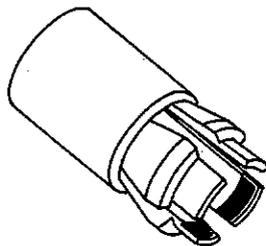
**Spring Compressor: 57001-1087**



**Front Fork Outer Tube Weight: 57001-1218**



**Front Fork Oil Seal Driver: 57001-1219**



## 11-6 SUSPENSION

### Front Fork

#### Front Fork Adjustment

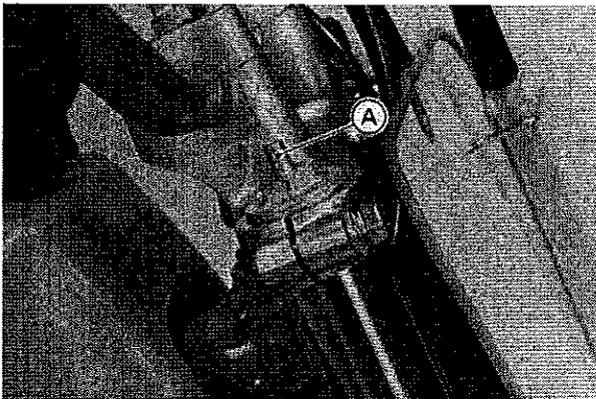
The front fork should always be adjusted for the rider's weight and track conditions by using one or more of the following methods.

Basically, there are four (KX) or two (KDX) adjustments you can make to the front fork.

- Air pressure adjustment (KX only) – 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 KX will get stiffer as the race progresses. Because of this, we don't recommend using air pressure for additional spring. Your KX forks are designed to work without adding any air, but if you decide that you need additional air pressure, go no higher than 40 kPa (0.4 kg/cm<sup>2</sup>, 6psi).
- 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 (KX only) – Optional springs are available that are softer and stiffer than standard.
- Fork clamp position – Steering qualities are greatly affected by the fork clamp position. Fork tube height is the amount of the inner tube projecting above the steering stem head. When the fork tube height is smaller, the front end becomes lighter due to the change in weight bias. Also, it tends to understeer in turns and "wash out". When the height is greater, the results are opposite.

#### Air Pressure Adjustment (KX only)

- Use a jack under the engine or other suitable means to lift the front of the motorcycle.
- Remove the air valve cap and check the air pressure. Standard air pressure is atmospheric pressure.



A. Air Valve

### NOTE

- Do not use the side stand when the air pressure is checked.
- Check the air pressure when the front forks are cold.
- ★ If atmospheric pressure is insufficient, add air using a tire pump until the desired pressure is reached. Make sure that the pressure is equal in both forks.

Maximum air pressure:  
40 kPa (0.4 kg/cm<sup>2</sup>, 6 psi)

### CAUTION

Inject air little by little so that air pressure does not rise rapidly. Air pressure exceeding 250 kPa (2.5 kg/cm<sup>2</sup>, 36 psi) may damage the oil seal.

### ⚠ WARNING

Use only air or nitrogen gas.  
Do not incinerate the front fork.

#### Oil Level Adjustment

- Use a jack under the engine or other suitable means to lift the front of the motorcycle.
- For the KX model: remove the air valve caps and release any air pressure.

### ⚠ WARNING

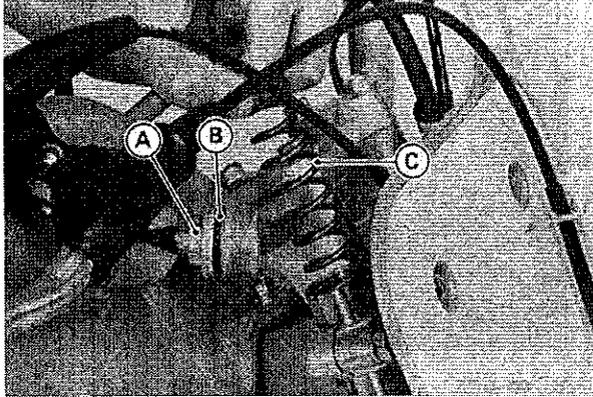
When disassembling the front fork, first release the air pressure from the fork. Failure to first release the air may cause injury.

- Remove the top bolts from the top of the fork tubes. For the KX80; pull out the spacers, spring seats and springs. For the KX60; pull out the spring. Check the O-rings on the top bolts for damage. If necessary, replace them.

### ⚠ WARNING

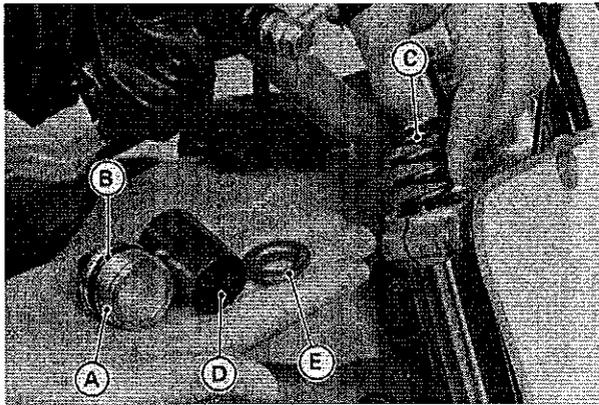
The top bolts are under extreme spring pressure. Take care when removing the top bolts. Wear eye and face protection.

**KX60:**



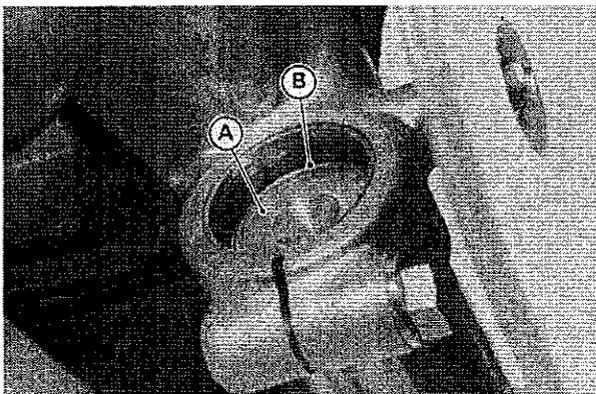
A. Top Bolt    B. O-ring    C. Spring

**KX80:**



A. Top Bolt                      D. Spacer  
 B. O-Ring                        E. Spring Seat  
 C. Spring

•For the KDX model; remove the cap from the top of the fork tubes, and push down the spring seat and remove the circlip from each fork tube. Then pull out the spring seat and spring.



A. Spring Seat            B. Circlip

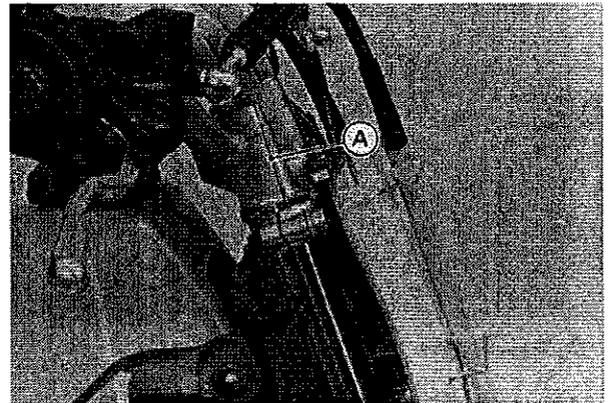
- Lower the front of the motorcycle, and slowly compress the front forks all the way.
- In this position, insert a rod down into the tube, and measure the distance from the top of the inner tube to the oil level.

**Standard Oil Level:**

<b>KX60:</b>	<b>132 ± 5 mm</b>
<b>KX80-L,M:</b>	<b>115 ± 5 mm</b>
<b>KX80-N,P:</b>	<b>100 ± 5 mm</b>
<b>KDX80:</b>	<b>143 ± 5 mm</b>

**Adjustable Range:**

<b>KX60:</b>	<b>100 — 165 mm</b>
<b>KX80-L,M:</b>	<b>90 — 145 mm</b>
<b>KX80-N,P:</b>	<b>90 — 130 mm</b>
<b>KDX80:</b>	<b>110 — 176 mm</b>



A. Rod

- Adjust the oil level as required within the adjustable range using one of the following oils.

**Recommended Oil**

<b>KX60, KDX80:</b>	<b>SHOWA SS8 or SAE5W20</b>
<b>KX80:</b>	<b>KAYABA G-10 or SAE10W</b>

**Fork Spring (KX model only)**

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.

## 11-8 SUSPENSION

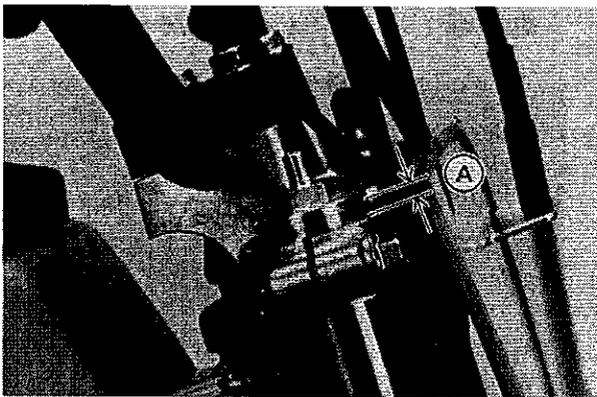
### Fork Clamp Position

Steering qualities are greatly affected by the fork clamp position. Fork tube height is the amount of the inner tube projecting above the steering stem head. When the fork tube height is smaller, the front end becomes lighter due to change in weight bias. Also, it tends to understeer in turns and "wash out". When the height is greater, the results are opposite.

Be sure the front tire doesn't rub the fender when the fork tubes compress fully. Make this adjustment in 5 mm increments.

### CAUTION

The inner tubes, both right and left, should be adjusted evenly.



A. Tube Height

### Standard Tube Height:

KX60:	15 mm
KDX80, KX80:	0 mm

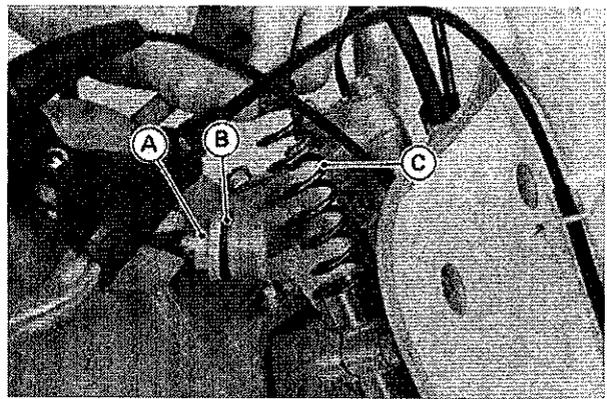
### Fork Oil Change

- For the KX60, 80 model, first release the air and loosen the top bolt each fork tube.

### ⚠ WARNING

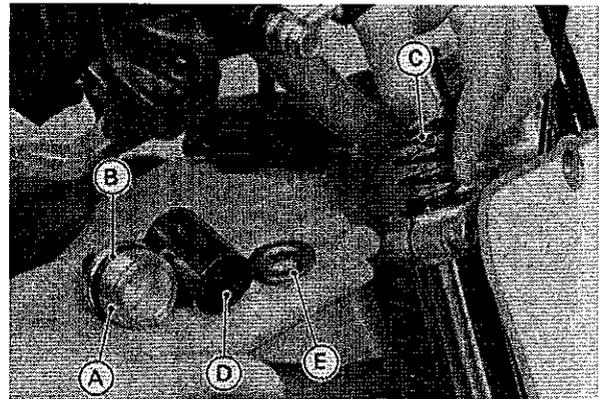
When disassembling, checking the oil level, and changing the oil of the front fork, first release the air from the fork. Failure to first release the air may cause injury.

- Place a stand or block under the motorcycle so that the front wheel is raised off the ground.
- Remove the front fork (see Front Fork Removal).
- For the KX60 model, remove the top bolt and pull out the spring.



A. Top Bolt  
B. O-Ring  
C. Spring

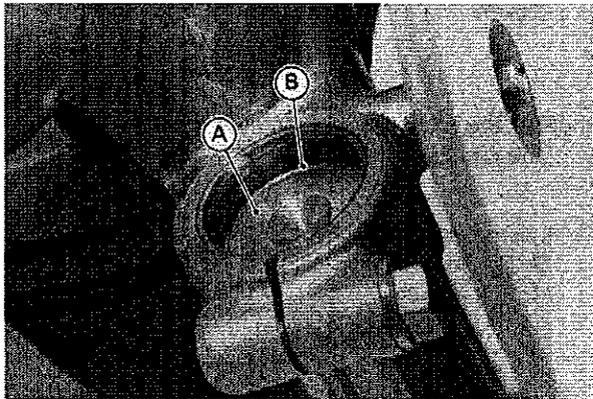
- For the KX80, remove the top bolt and pull out the spacer, spring seat and spring.



A. Top Bolt  
B. O-Ring  
C. Spacer  
D. Spring Seat  
E. Spring

**WARNING**

- The top bolts are under extreme spring pressure. Use care when removing the top bolts. Wear eye and face protection.
- For the KDX80 model; remove the cap from the top of the fork tube, and push down the spring seat and remove the circlip from the fork tube.



A. Spring Seat      B. Circlip

- Turn the front fork leg upside down, and pour the oil into a container. Pump the fork to drain the old oil completely.
- Pour in the type and amount of fork oil specified.

**Recommended oil:**

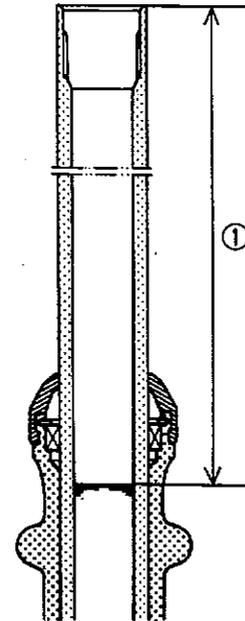
**KX60, KDX80:**      **SHOWA SS8 or SAE 5W20**  
**KX80:**                **KAYABA G-10 or SAE 10W**

**Front Fork Oil Capacity:**

**KX60:**                **181 ± 2.5 mL**  
**KX80-L.M:**        **333 ± 3 mL**  
**KX80-N.P:**        **352 ± 3 mL**  
**KDX80:**            **170 ± 2.5 mL**

- Check the oil level.
- With the fork fully compressed, insert a tape measure or rod into the inner tube, and measure the distance from the top of the inner tube to the oil.
- ★If the oil is above or below the specified level, remove or add oil and recheck the oil level.

**Fork Oil Level Measurement**



**1. Oil Level**

**Front Fork Oil Level (Standard)**

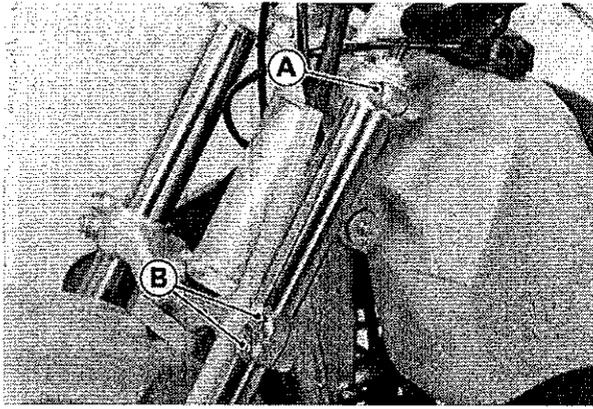
<b>KX60:</b>	<b>132 ± 5 mm</b>
<b>KX80-L,M:</b>	<b>115 ± 5 mm</b>
<b>KX80-N,P:</b>	<b>100 ± 5 mm</b>
<b>KDX80:</b>	<b>143 ± 5 mm</b>

- Install the parts removed.
- For the KX60 and KX80 models; check the O-ring at the top bolt. Replace it with a new one if damaged.
- Install the front fork leg.
- Change the fork oil in the other fork leg in the same manner.

**Front Fork Removal**

- Remove the caliper from the fork leg (if applicable), 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.

## 11-10 SUSPENSION



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

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

### Front Fork Installation Notes

- Installation is the reverse of removal.
- If the fork leg 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 nuts to the specified torque.

#### Tightening Torque:

##### KX60, KDX80:

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

Lower: 25N-m (2.5 kg-m, 18 ft-lb)

KX80: 17 N-m (1.7 kg-m, 12 ft-lb)

- For the KX80; tighten the caliper mounting bolts to the specified torque.

#### Tightening Torque:

25N-m (2.5 kg-m, 18 ft-lb)

- Tighten the front axle nut to the specified torque.

#### Tightening Torque:

KX60, KDX80: 49N-m (5.0 kg-m, 36 ft-lb)

KX80: 69N-m (7.0 kg-m, 51 ft-lb)

- Check front brake operation after installation.

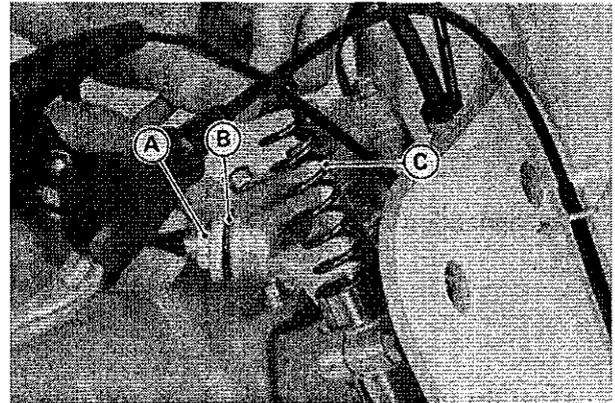
### Front Fork Disassembly

- Remove the front fork leg.
- Remove the dust seal from the outer tube.
- For the KX60 and KX80 models; first release the air and loosen the top bolt in each fork tube.

#### WARNING

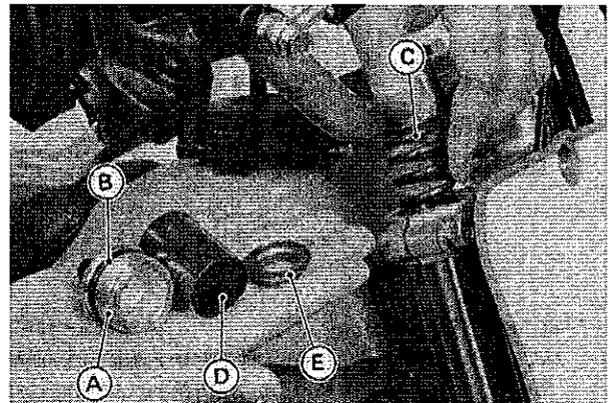
- When disassembling, checking the oil level, or changing the front fork oil, first release the air from the fork. Failure to first release the air may cause injury.

- For the KX60 model; remove the top bolt and pull out the spring.



A. Top Bolt  
B. O-Ring  
C. Spring

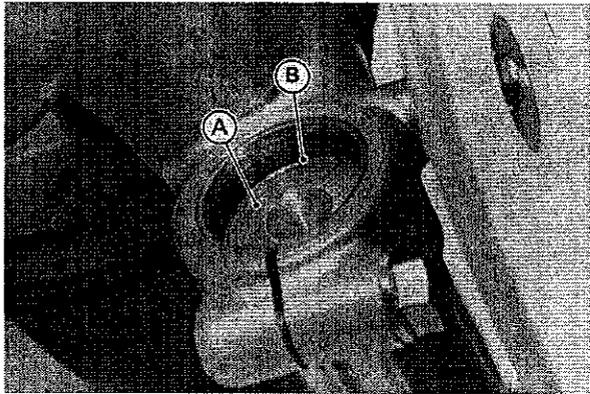
- For the KX80 model; remove the top bolt and pull out the spacer, spring seat and spring.



A. Top Bolt  
B. O-ring  
C. Spring  
D. Spacer  
E. Spring Seat

**WARNING**

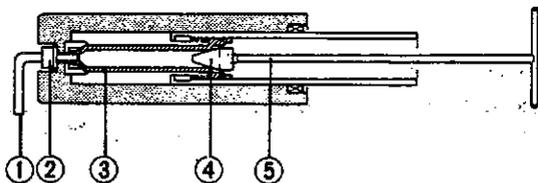
- The top bolts are under extreme spring pressure. Use care when removing the top bolts. Wear eye and face protection.
- For the KDX80 model; remove the cap from the top of the fork tube, and push down the spring seat and remove the circlip from the fork tube.



A. Spring seat      2. Circlip

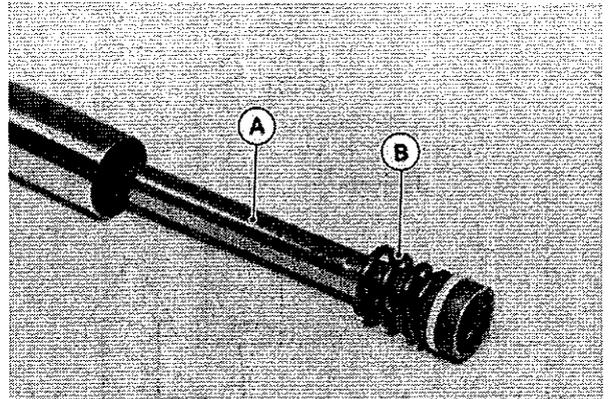
- Pour the fork oil into a container.
- Stop the cylinder from turning by using the front fork cylinder holder handle and adapter (special tools). Unscrew the Allen bolt, and take the bolt and gasket out of the bottom of the outer tube.

**Allen Bolt Installation/Removal**



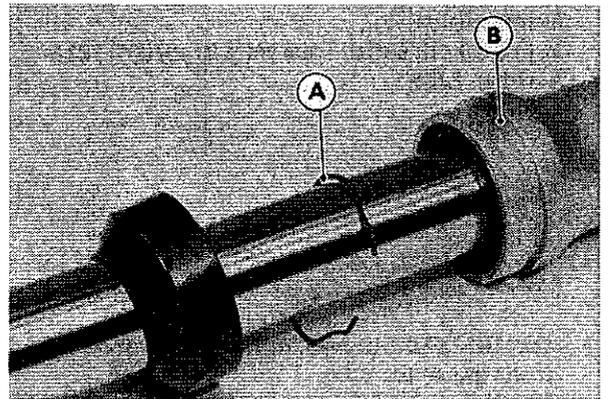
1. Allen Wrench
2. Allen Bolt
3. Cylinder Unit
4. Adapter: 57001-1257
5. Front Fork Cylinder Holder Handle: 57001-183

- Remove the cylinder unit and the spring from the top of the front fork tube.



A. Cylinder Unit  
B. Spring

- Separate the inner tube from the outer tube as follows.
- Remove the retaining ring from the outer tube.

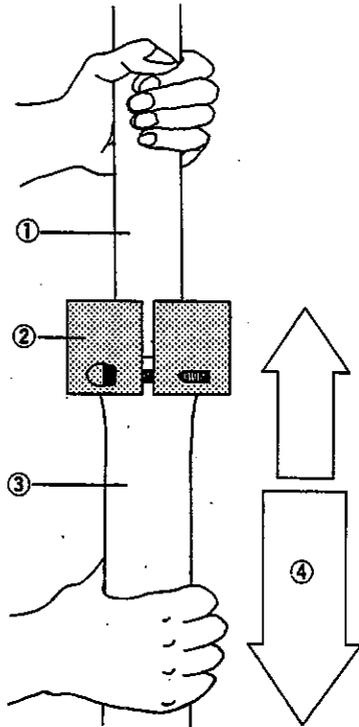


A. Retaining Ring      B. Outer Tube

- Mount the front fork outer tube weight (special tool) on the top of the outer tube, by fitting the step of the weight (special tool) to the top corner of the outer tube.
- Holding the inner tube by hand in a vertical position, stroke the outer tube up and down several times and pull it down. This shock to the fork leg separates the outer tube from the inner tube.

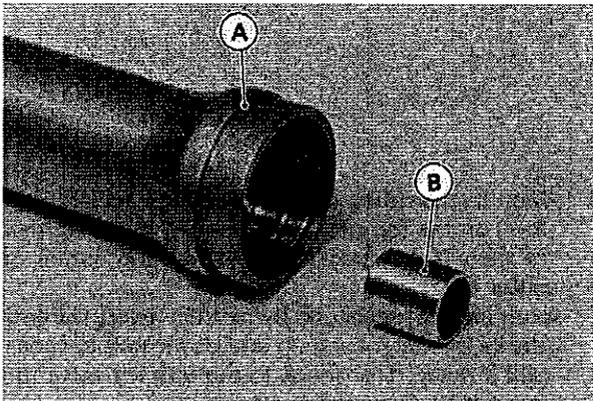
## 11-12 SUSPENSION

### Front Fork Separation



1. Inner Tube
2. Front Fork Outer Tube Weight: 57001-1218
3. Outer Tube
4. Stroke

- For the KX80 model; remove the outer tube seal from the outer tube.
- For the KX80 model; remove the washer and outer tube guide bush from the top of the outer tube.
- Remove the cylinder base from the bottom of the outer tube.

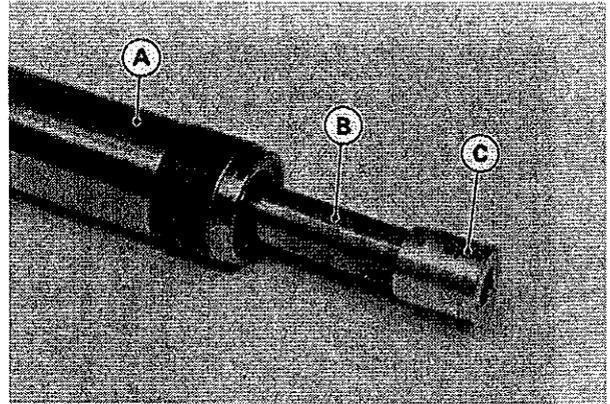


A. Outer Tube

B. Cylinder Base

### Front Fork Assembly Notes

- Assembly is the reverse of disassembly.
- Check the O-ring at the top bolt. Replace it with a new one if damaged.
- Replace the removed oil seal with a new one.
- Replace the guide bushes with new ones.
- Insert the cylinder unit and spring in the inner tube.
- Insert the cylinder base in the cylinder unit.



A. Inner Tube

C. Cylinder Base

B. Cylinder Unit

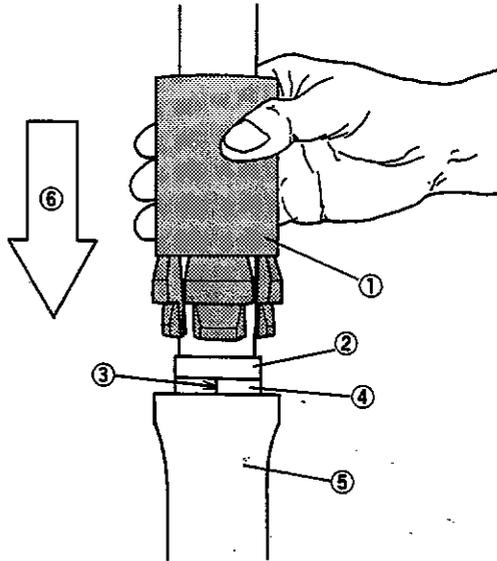
- Insert the inner tube and cylinder unit as a set into the outer tube.
- Apply a liquid gasket to both sides of the gasket, and apply a non-permanent locking agent to the threads of the Allen bolt at the bottom of the outer tube.
- Stop the cylinder from turning by using the front fork cylinder holder handle (special tool: 57001-183) and holder adapter (special tool: 57001-1257), tighten the Allen bolt to the specified torque.

### Tightening Torque:

KX60, KDX80:	20 N-m (2.0 kg-m, 14.5 ft-lb)
KX80:	29 N-m (3.0 kg-m, 22 ft-lb)

- When replacing the outer tube guide bush with a new one, hold the used guide bush against the new one, and tap the used guide bush with the front fork oil seal driver (special tool) until it stops. The slit in the bush must face toward the wheel.

**Guide Bush Installation**



1. Front Fork Oil Seal Driver: 57001-1219
2. Used Guide Bush
3. Slit (face toward the wheel)
4. New Guide Bush
5. Outer Tube
6. Tap

- After installing the washer, install the oil seal by using the fork oil seal driver (special tool: 57001-1219).
- Using the fork oil seal driver (special tool: 57001-1219), install the outer tube seal.
- Pour in the type and amount of fork oil specified, and adjust the oil level (see Fork Oil Change).

**Inner Tube Inspection**

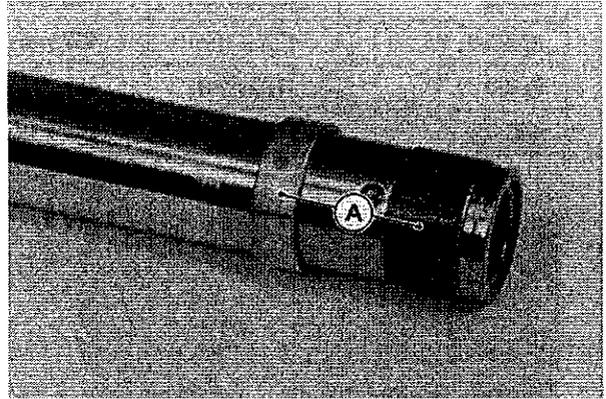
- Visually inspect the inner tube, and repair any damage.
- Nicks or rust damage can sometimes be repaired by using a wet-stone to remove sharp edges or raised areas which cause seal damage.
- ★If the damage is not repairable, replace the inner tube. Since damage to the inner tube damages the oil seal, replace the oil seal whenever the inner tube is repaired or replaced.
- Temporarily assemble the inner and outer tubes, and pump them back and forth manually to check for smooth operation.

**CAUTION**

**If the inner tube is badly bent or creased, replace it. Excessive bending, followed by subsequent straightening, can weaken the inner tube.**

**Guide Bush Inspection**

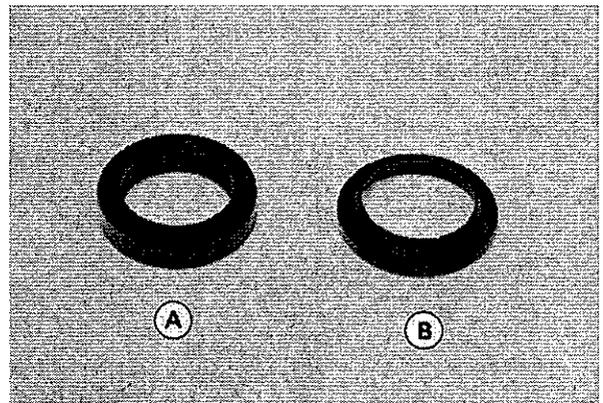
- Visually inspect the guide bushes, and replace them if necessary.



A. Guide Bushes

**Oil Seal and Outer Tube Seal Inspection**

- Inspect the outer tube seal for any signs of deterioration or damage.
- ★Replace them if necessary.
- Replace the oil seal with a new one whenever it has been removed.



A. Oil Seal

B. Outer Tube Seal

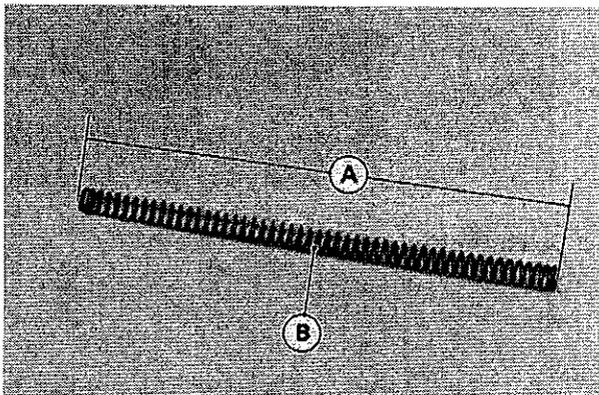
**Spring Tension**

- Since a spring becomes shorter as it weakens, check its free length to determine its condition.
- ★If the spring of either fork leg is shorter than the service limit, it must be replaced. If the length of a replacement spring and that of the remaining spring vary greatly, the remaining spring should also be replaced in order to keep the fork legs balanced for motorcycle stability.

## 11-14 SUSPENSION

### Fork Spring Free Length

	Standard	Service Limit
KX60	487.9 mm	478 mm
KX80-L, M	497.5 mm	487 mm
KX80-N, P	470 mm	461 mm
KDX80	547.5 mm	536 mm



A. Free Length

B. Fork Spring

### Rear Suspension (Uni-Trak)

#### Rear Shock Absorber

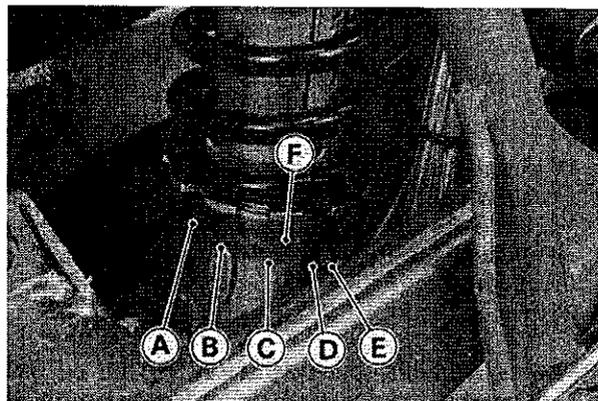
KX60, KDX80:

The rear suspension system of this motorcycle is uni-trak. It consists of a rear shock absorber, swingarm, uni-trak arm and link.

To suit to various riding conditions, the spring preload of the shock absorber can be adjusted.

The Spring adjusting sleeve on the rear shock absorber has 5 positions. If the spring action feels too soft or too stiff, adjust it in accordance with following table.

Position	1	2	3	4	5
Spring Action	→ Stronger				



A. Position No. 1

B. Position No. 2

C. Position No. 3

D. Position No. 4

E. Position No. 5

F. Adjusting sleeve

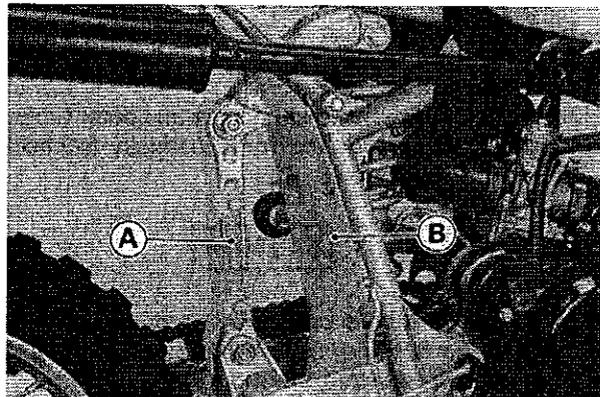
#### Rear Shock Absorber Adjustment

- Remove the following parts.

Seat

Right and Left Side Covers

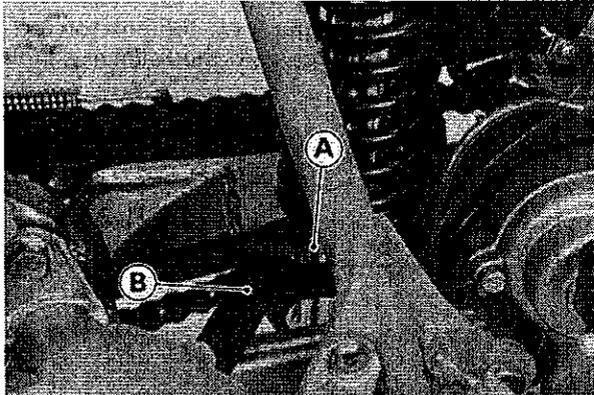
- Remove the uni-trak link upper mounting bolt and nut, and slide the uni-trak link toward the rear.



A. Uni-Trak Link

B. Flap

- Remove the band and flap mounting bolts, and take off the flap.
- Install the uni-trak link upper end and finger-tighten the nut.
- Using the hook wrench (special tool), turn the adjusting sleeve to adjust the spring preload.



A. Adjusting Sleeve.  
B. Hook Wrench: 57001-1100

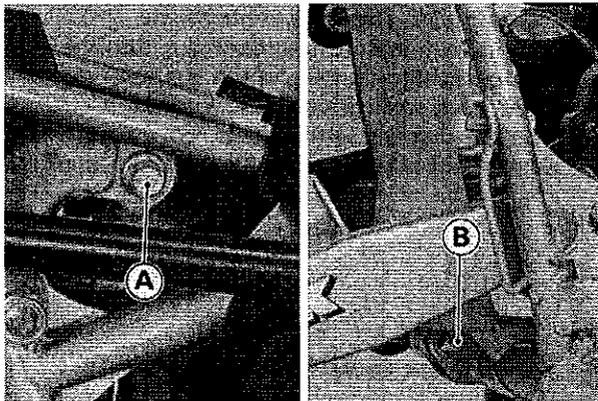
- Remove the uni-trak upper mounting bolt and nut.
- Install the flap with two mounting bolts and band.
- Mount the uni-trak upper end on the uni-trak arm with mounting bolt and nut, and tighten the mounting bolt to the specified torque.

**Tightening Torque:**

- KX60:** 49 N-m (5.0 kg-m, 36 ft-lb)
- KDX80:** 54 N-m (5.5 kg-m, 40 ft-lb)

**Rear Shock Absorber Removal**

- Remove the following parts.  
Seat  
Right and Left Side Covers
- Loosen the rear shock absorber upper and lower mounting nuts. Do not remove them yet.

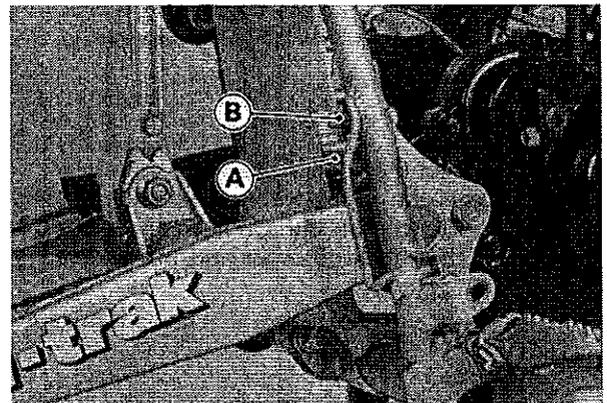


A. Upper Mounting Bolt  
B. Lower Mounting Bolt

- Place a stand or block under the motorcycle so that the rear wheel is raised off the ground.
- Remove the mounting bolts and nuts, and take the rear shock absorber out to the left.

**Rear Shock Absorber Installation**

- Installation is the reverse of removal.
- Install the rear shock absorber so that the label on the shock absorber faces to the right side.



A. Shock Absorber    B. Label

- Tighten the rear shock absorber upper and lower mounting nuts to the specified torque.

**Tightening Torque:**

- KX60:** 49 N-m (5.0 kg-m, 36 ft-lb)
- KDX80:** 54 N-m (5.5 kg-m, 40 ft-lb)

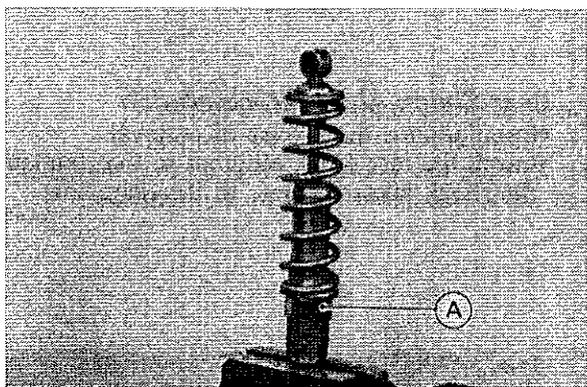
**Rear Shock Absorber Spring Replacement  
KX60 Only**

In addition to the standard spring, heavy and light springs are available.

- Remove the following parts.  
Seat  
Right and Left Side Covers  
Rear Shock Absorber
- Hold the bottom of the rear shock absorber with a vise.

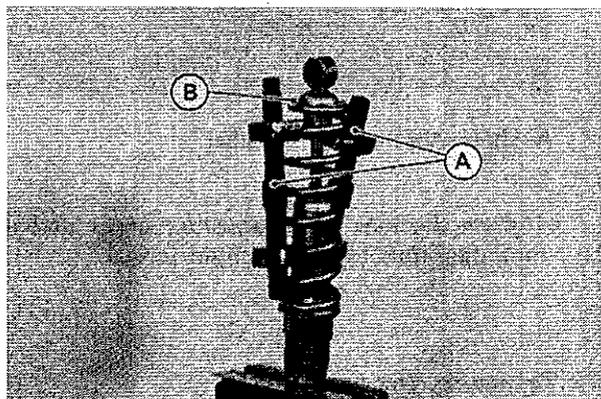
## 11-16 SUSPENSION

- Using the hook wrench (special tool), turn the adjusting sleeve down to the lightest preload position.



A. Adjusting Sleeve

- Slide down the rubber bumper.
- Compress the spring with a spring compressor (special tool). Remove the spring retainer clip from the top of the shock absorber and lift off the spring.



A. Spring Compressor: 57001-1087  
B. Spring Retainer Clip

- Exchange the spring for an optional part.
- Install the spring and retainer clip.
- Adjust the spring preload.
- Install the rear shock absorber.

### KX80:

The rear suspension system of this motorcycle is Uni-trak. It consists of a rear shock absorber, swing arm, tie rod and rocker arm.

To suit to various riding conditions, the spring preload of the shock absorber can be adjusted or the spring can be replaced with an optional one. Also the damping force can be adjusted easily so changing oil viscosity is unnecessary.

### Shock Damping Adjustment

#### Rear Shock Absorber

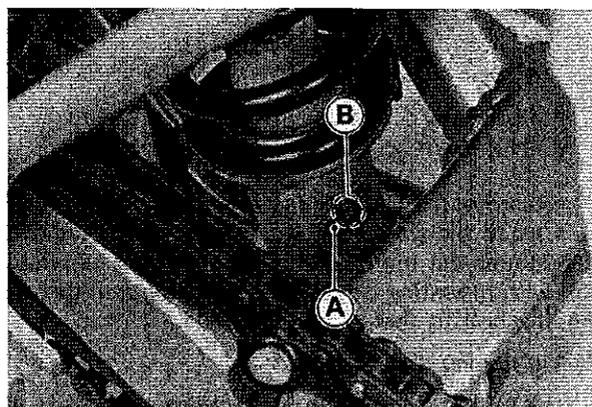
#### Rebound Damping Adjustment

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. The shock rebound damping can be adjusted four-ways.

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

#### Rebound Damping Adjustment

Dial Position	I	II	III	IIII
Damping Force	Minimum ← → Maximum			



A. Rebound Damping Adjuster  
B. Position Number

### Gas Reservoir

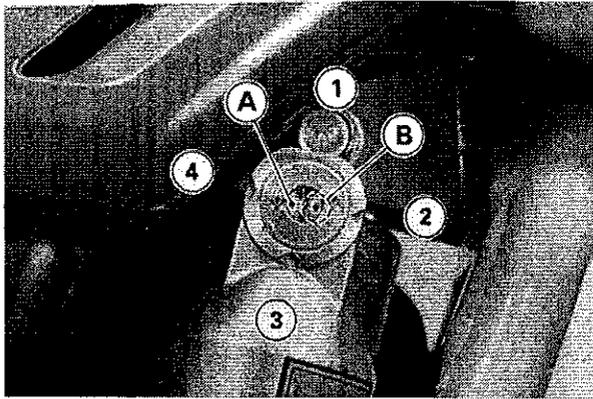
#### Compression Damping Adjustment

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

Position	1	2	3	4
Damping Force	Minimum ← → Maximum			



A.Compression Damping Adjuster  
 B.Mark  
 ① ② ③ ④: Position

**Gas Pressure Adjustment**

The gas pressure in the gas reservoir can be adjusted for different course and loading conditions.

The following table shows an example of gas pressure adjustment. To obtain stable handling or a suitable riding condition, adjust the gas pressure for different course and loading conditions as necessary. The standard gas pressure is 1 000 kPa (10.0 kg/cm<sup>2</sup>, 142 psi). Ordinarily, the heavier the total load becomes, the higher the gas pressure should be set.

**Gas Pressure Adjustment (Adjustable Range)**

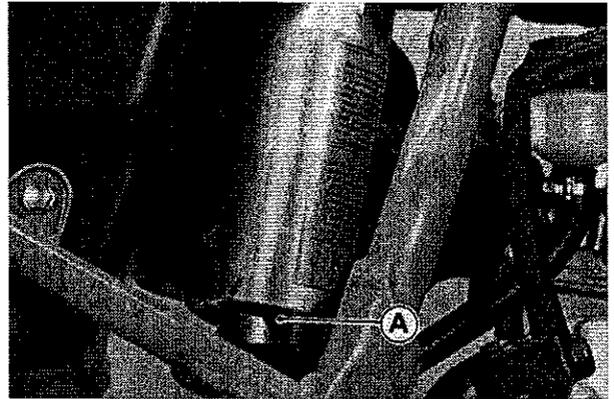
Gas Pressure [kPa (kg/cm <sup>2</sup> , psi)]	Setting	Load	Course
1000 (10.0, 142)	Soft	Light	Smooth
↑ ↓	↑ ↓	↑ ↓	↑ ↓
1 500 (15.0, 213)	Hard	Heavy	Rough

To adjust the gas pressure:

**NOTE**

◦Check and adjust the gas pressure when the gas reservoir is cold (room temperature).

- Use a jack under the engine or other suitable means to raise the rear wheel off the ground.
- Remove the valve cap and check the gas pressure with the air pressure gauge.



A.Valve Cap

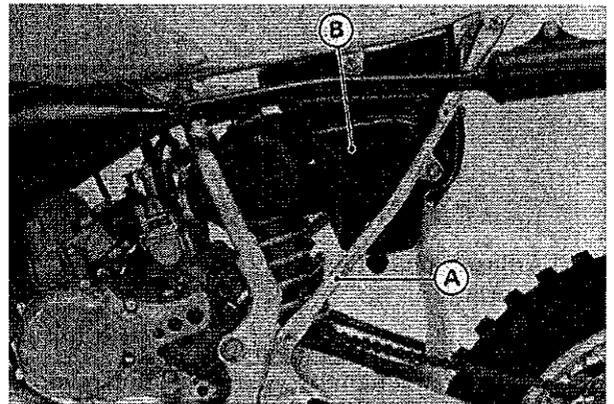
- If standard pressure is insufficient for you, add nitrogen gas using a suitable tool until the desired pressure is reached. Change the gas pressure within the range specified in the table above to suit various riding conditions.

**WARNING**

- Use only nitrogen gas.
- Do not incinerate the gas reservoir.

**Spring Preload Adjustment**

- Remove the seat, right and left side covers.
- Loosen the air cleaner duct clamp screw.
- Remove the rear frame and air cleaner case.

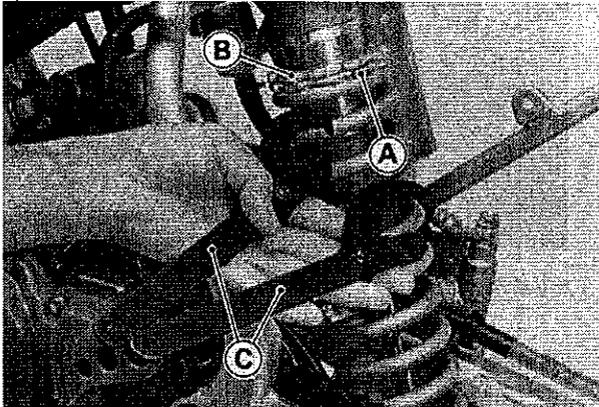


A. Rear Frame      B. Air Cleaner Case.

- Place a sturdy block or support under the frame so that the rear wheel is raised off the ground.

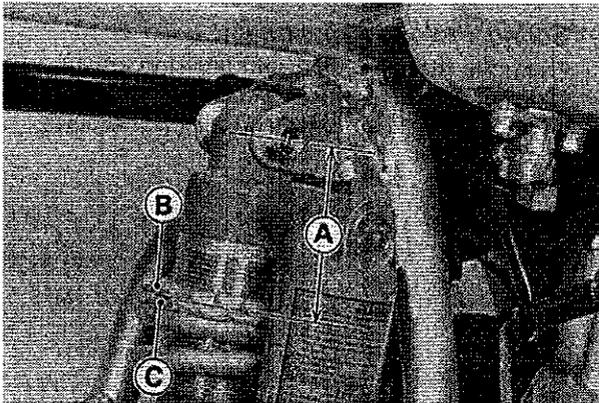
## 11-18 SUSPENSION

- Using the hook wrenches (special tools), loosen the locknut and turn the adjusting nut as required. Turning the adjusting nut down makes the spring preload stronger.



A. Adjusting Nut      C. Hook Wrench: 57001-1100  
B. Locknut

- Standard Spring preload is 494 N (50.4 kg, 111 lb) [KX80-N.P: 471 N (48 kg, 106 lb)]. The adjusting nut changes the preload 62 N (6.3 kg, 14 lb) turn [KX80-N.P: 47.1 N (4.8 kg, 10.6 lb) turn]
- The standard adjusting nut position from the center of the upper mounting hole is 83 mm (KX80-N.P: 86 mm). The adjustable range is 73 — 96 mm (KX80-N.P: 76 — 96 mm).



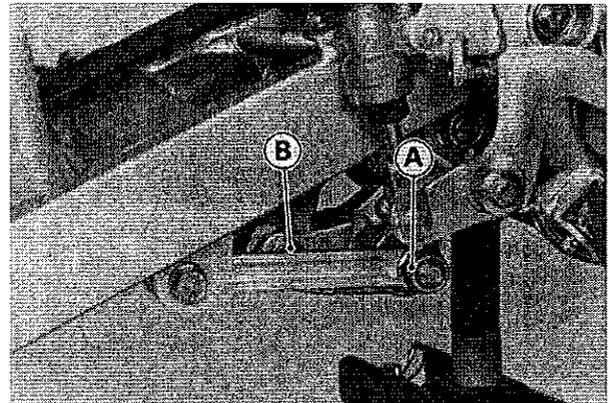
A. Adjusting Nut Position      C. Adjusting Nut  
B. Locknut.

- Tighten the locknut securely.
- After adjustment, move the spring up and down to make sure that the spring is seated.
- Install the parts removed.

### Rear Shock Absorber Removal

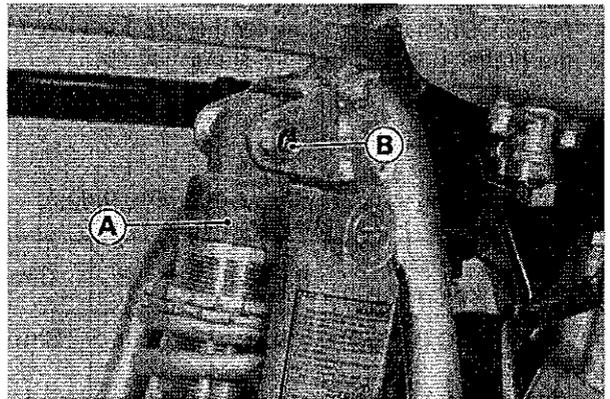
- Remove the following parts.  
Seat  
Right and Left Side Covers  
Rear Frame and Air Cleaner case.

- Place a stand or block under the motorcycle so that the rear wheel is raised off the ground.
- Remove the tie-rod front mounting nut, and pull out the mounting bolt.
- Remove the rear shock absorber lower mounting nut, and pull out the mounting bolt.



A. Tie-Rod Front Mounting Nut  
B. Rear Shock Absorber Lower Mounting Bolt

- Remove the rear shock absorber upper mounting bolt, and pull the rear shock absorber down and out.



A. Rear Shock Absorber  
B. Rear Shock Absorber Mounting Bolt

**CAUTION**

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

### Rear Shock Absorber Installation Notes

- Installation is the reverse of removal.
- Tighten the rear shock absorber upper, lower and tie-rod front mounting nuts to the specified torque.

**Tightening Torque:**

**Rear Shock Absorber Nut (Upper and Lower):**

31 N-m (3.2 kg-m, 23 ft-lb)

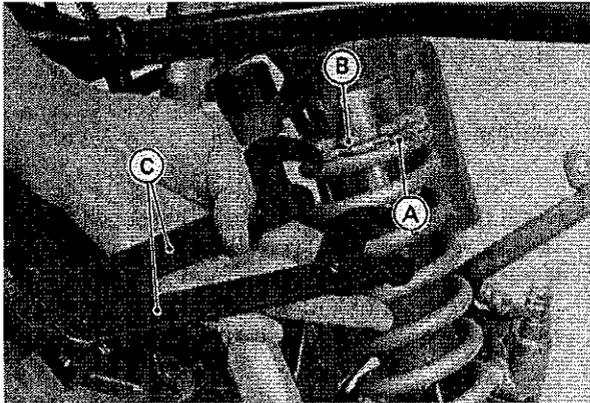
**Uni-trak Tie-rod Nut:**

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

**Rear Shock Absorber Spring Replacement**

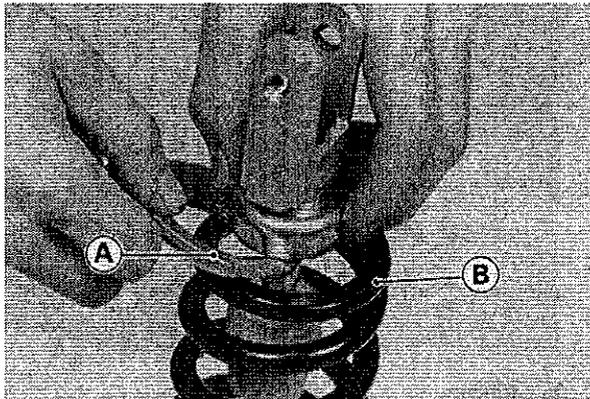
In addition to the standard spring, heavy and light springs are available. If the standard spring is improper for your purpose, select a proper one according to the rider's weight or course conditions.

- Remove the following parts.  
Seat  
Right and Left Side Covers  
Rear Frame and Air Cleaner case
- Using the hook wrenches (special tools), loosen the locknut and turn the adjusting nut all way down.



A. Adjusting Nut  
B. Locknut  
C. Hook Wrenches: 57001-1100

- Remove the rear shock absorber.
- Clean the threaded portion on the upper of the rear shock absorber.
- Hold the upper of the rear shock absorber with a vise.
- Slide down the rubber bumper.
- Remove the spring retainer clip from the shock absorber and lift off the spring.



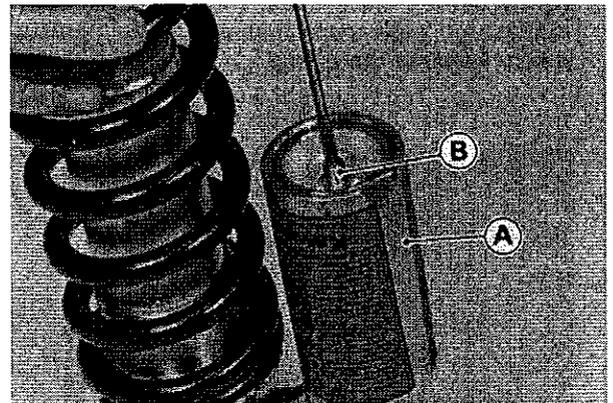
A. Retainer Clip      B. Spring

- Exchange the spring for an optional part.
- Install the spring and retainer clip.
- Adjust the spring preload.
- Install the rear shock absorber.

**Rear Shock Absorber Disassembly (Oil Change)**

The oil should be changed in the rear shock absorber at least once per racing season. The frequency for best performance must be based upon riding conditions and rider ability.

- Remove the rear shock absorber from the frame (see Rear Shock Absorber Removal).
- Point the valve away from you. Slowly release nitrogen gas pressure by pushing down the valve core with a screwdriver.



A. Gas Reservoir      B. Valve

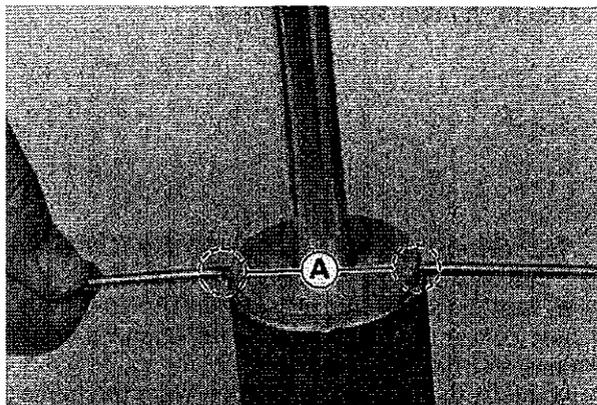
**WARNING**

- Be sure to point the reservoir valve away from you when releasing nitrogen gas pressure. An oil mist is often released with the nitrogen.
- Always release nitrogen gas pressure before disassembling the rear shock absorber to prevent explosive separation of parts.

- Point the valve away from you. Slowly release nitrogen gas pressure by pushing down the valve core with a screwdriver.

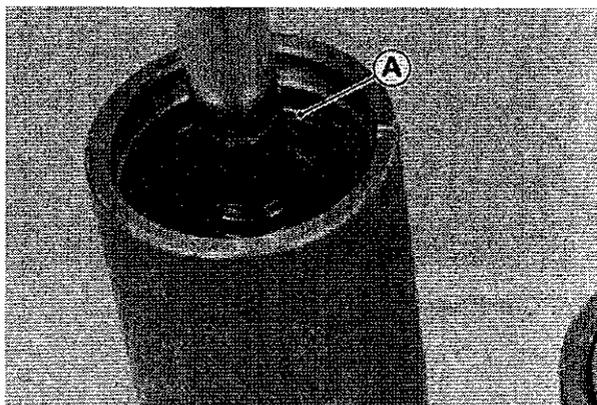
## 11-20 SUSPENSION

- Pry at the gaps in the stop with suitable tools to free the stop from the rear shock body.



A. Gaps

- Slide the stop up to the top of the push rod then lightly tap around the seal with a suitable rod and mallet, and push the seal assembly 10 mm (0.04 in) down. Remove the circlip.



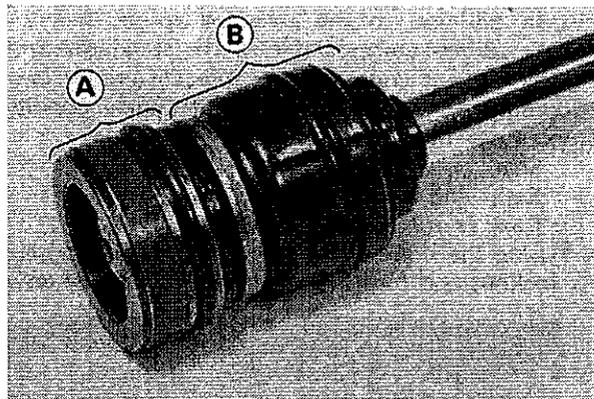
A. Circlip

- Lightly move the push rod back and forth, and pull out the push rod assembly.
- Pour the oil out of the rear shock body.

### *Rear Shock Absorber Assembly Notes*

- Assembly is reverse of disassembly.
- Adjust the gas reservoir damper adjuster to the softest position.

- Fill the 168mL of KYB K2-C (SAE5W or Bel-Ray SE2 #40) oil into the rear shock body and gas reservoir.
- Insert the piston end of the push rod assembly into the rear shock body slowly, and pump the push rod until all the air is forced out of the rear shock body.

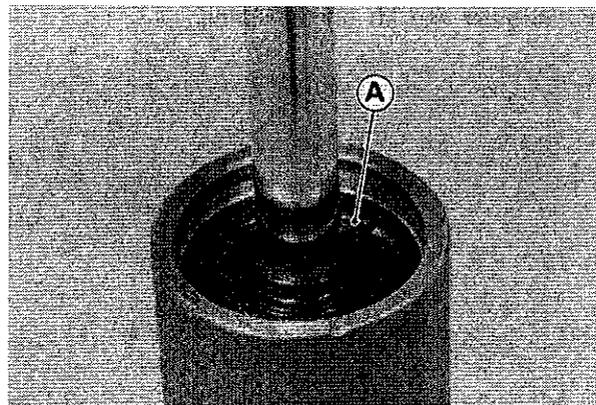


A. Piston B. Seal Assembly.

- Push the seal assembly into the rear shock body until it just clears the circlip groove.
- Check the circlip. If it is deformed or damaged, replace it with a new one.
- Fit the circlip into the groove in the rear shock body.

**CAUTION**

- If the circlip is not a certain fit in the groove in the rear shock body, the push rod assembly may come out of the shock absorber when injecting the nitrogen gas or riding the motorcycle.



A. Circlip

- Pull up the push rod assembly against the circlip.
- Force the stop into the rear shock body by lightly tapping around the edge of the stop with a mallet.
- Inject nitrogen gas to a pressure of 50 kPa (0.5 kg/cm<sup>2</sup>, 7 psi) through the valve on the gas reservoir.
- Check the rear shock body and gas reservoir for oil and gas leaks.
- ★ If there are no leaks, inject the nitrogen gas up to the specified pressure. The adjustable gas pressure range is 1000 — 1500 kPa (10 — 15 kg/cm<sup>2</sup>, 142 — 213 psi) and the factory standard gas pressure is 1000 kPa (10 kg/cm<sup>2</sup>, 142 psi).

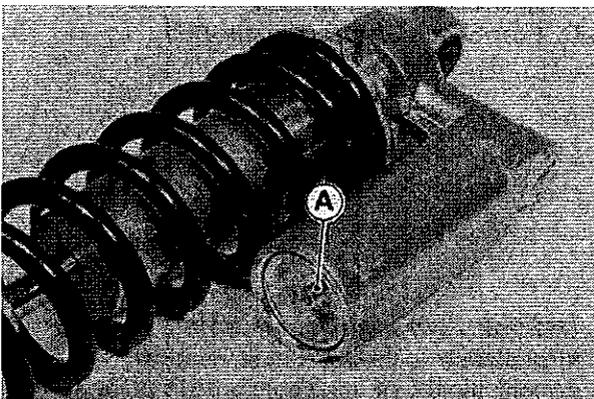
**WARNING**

- Pressurize the gas reservoir with nitrogen gas only. Do not use air or other gases, since they may cause premature wear, rust, fire hazard or sub-standard performance.
- High pressure gas is dangerous. Have a qualified mechanic perform this procedure.
- Install the spring and retainer clip.
- Adjust spring preload. Reinstall the rear shock absorber.

**Scrapping**

**WARNING**

- Since the rear shock absorber contains nitrogen gas, do not incinerate or disassemble the rear shock absorber.
- Before a rear shock absorber is scrapped, release the nitrogen gas completely. Do not point the valve to your face or body then.



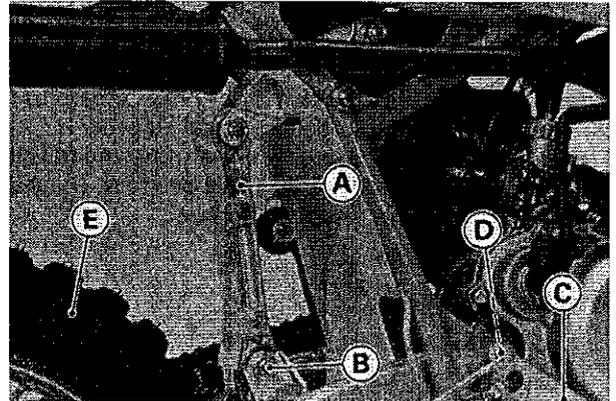
A. Valve

**Swing Arm:**

**Swing Arm Removal**

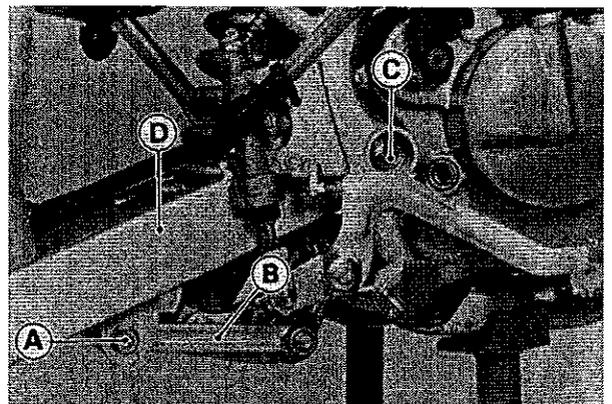
- Remove the rear wheel (see Rear Wheel Removal in the Wheel/Tires chapter).
- For the KX60 and KDX80 models; remove the brake pedal, uni-trak link lower bolt.
- For the KX80 model; remove the tie-rod rear mounting bolts.
- Pull out the swing arm pivot shaft, and remove the swing arm.

**KX60, KDX80:**



A. Uni-trak Link  
B. Lower Bolt  
C. Brake Pedal  
D. Swing Arm Pivot Shaft  
E. Rear Wheel

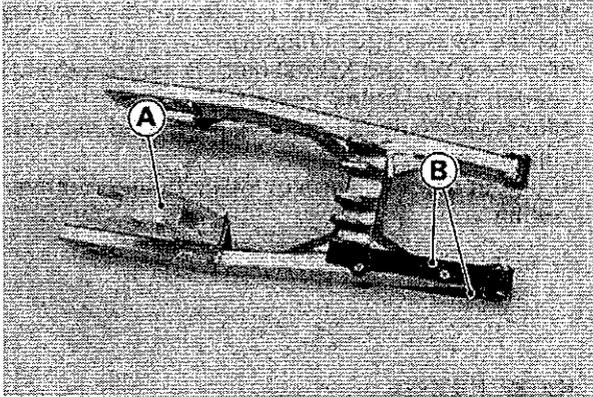
**KX80:**



A. Rear Mounting Bolt  
B. Tie-Rod  
C. Swing Arm Pivot Shaft  
D. Swing Arm

## 11-22 SUSPENSION

- Separate the chain guides and chain slippers from the swing arm.



A. Chain Guide      B. Chain Slippers

### Swing Arm Installation Notes

- Installation is the reverse of removal.
- Apply plenty of molybdenum disulfide grease to the inside of the needle bearings and sleeves.
- Tighten the swing arm pivot shaft nut, uni-trak link lower nut (KX60, KDX80) and the tie-rod rear mounting nut (KX80) to the specified torque.

### Tightening Torque:

#### Pivot Shaft Nut:

69N-m (7.0kg-m, 51 ft-lb)

#### Uni-trak Link Lower Nut (KX60, KDX80):

KX60: 49N-m (5.0 kg-m, 36 ft-lb)

KDX80: 54N-m (5.5 kg-m, 40 ft-lb)

#### Tie-rod Rear Mounting Nut (KX80):

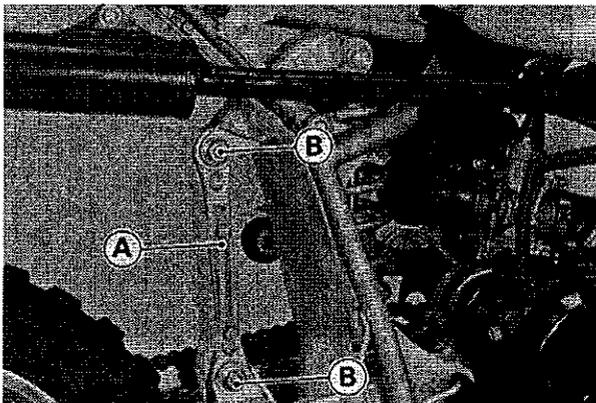
34N-m (3.5 kg-m, 25 ft-lb)

- Refer to the Wheels/Tires, Final Drive, and Brakes chapters for wheel installation.

### Uni-trak Link, Arm (KX60, KDX80)

#### Uni-trak Removal

- Place a stand or block under the motorcycle so that the rear wheel is raised off the ground.
- Remove the uni-trak link upper and lower bolts.



A. Uni-trak Link      B. Bolt

### Uni-trak Link Installation Notes

- Installation is the reverse of removal.
- Apply plenty of molybdenum disulfide grease to the spherical bearings of the uni-trak link.
- Tighten the uni-trak link nuts to the specified torque.

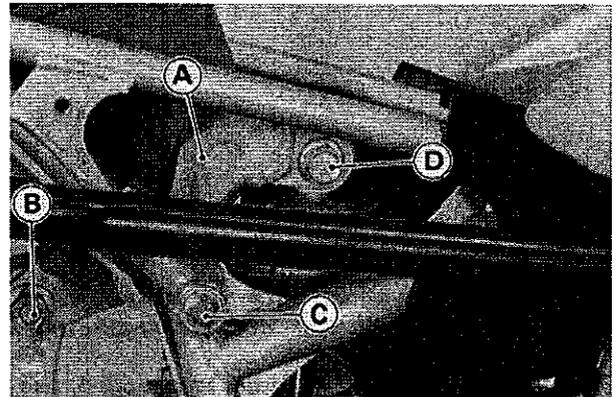
### Tightening Torque:

KX60: 49N-m (5.0 kg-m, 36 ft-lb)

KDX80: 54N-m (5.5 kg-m, 40 ft-lb)

### Uni-trak Arm Removal

- Remove the following parts:
  - Seat
  - Left and Right Side Covers
- Place a stand or block under the motorcycle so that the rear wheel is raised off the ground.
- Remove the uni-trak link upper bolt and rear shock absorber upper bolt.
- Remove the uni-trak arm center bolt and take out the uni-trak arm from the frame.



A. Uni-trak Arm  
B. Uni-trak Link Upper Bolt  
C. Uni-trak Arm Center Bolt  
D. Rear Shock Absorber upper Bolt

### Uni-trak Arm Installation Notes

- Installation is the reverse of removal.
- Apply plenty of molybdenum disulfide grease to the inside of the needle bearing and sleeve.
- Tighten the following parts to the specified torque.

**Tightening Torque:**

**Uni-trak Arm Center nut:**

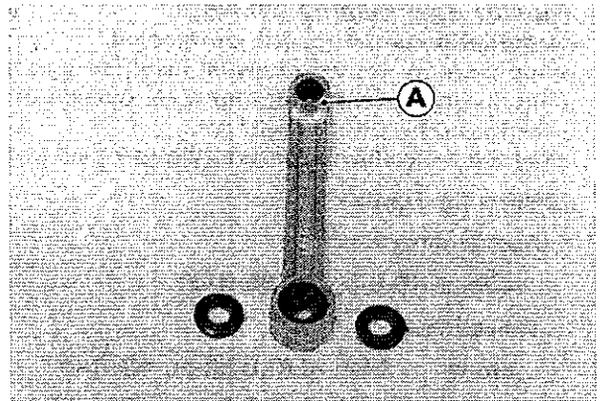
- KX60: 69N-m (7.0 kg-m, 51 ft-lb)
- KDX80: 59N-m (6.0 kg-m, 43 ft-lb)

**Uni-trak Link Upper Nut:**

- KX60: 49N-m (5.0 kg-m, 36 ft-lb)
- KDX80: 54N-m (5.5 kg-m, 40 ft-lb)

**Rear Shock Absorber Upper Nut**

- KX60: 49N-m (5.0 kg-m, 36 ft-lb)
- KDX80: 54N-m (5.5 kg-m, 40 ft-lb)



A. Protruding Side

**Tie-Rod, Rocker Arm (KX80):**

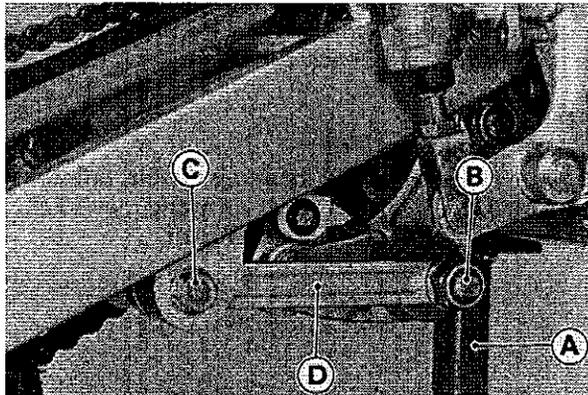
***Tie-Rod Removal***

- Place a stand or block under the motorcycle so that the rear wheel is raised off the ground.
- Remove the tie-rod front mounting bolt.
- Remove the tie-rod rear mounting bolts, and then take out the tie-rods.

- Tighten the tie-rod front and rear mounting nuts to the specified torque.

**Tightening Torque:**

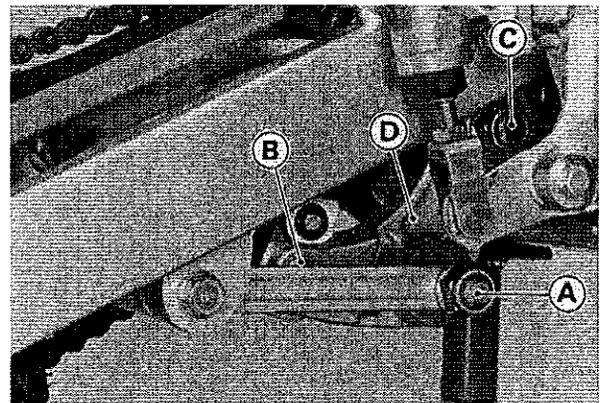
- Front: 59N-m (6.0 kg-m, 43 ft-lb)**
- Rear: 34N-m (3.5 kg-m, 25 ft-lb)**



- A. Stand
- B. Tie-Rod Front Mounting Bolt
- C. Tie-Rod Rear Mounting Bolt
- D. Tie-Rod

***Rocker Arm Removal***

- Place a stand or block under the motorcycle so that the rear wheel is raised off the ground.
- Remove the tie-rod front mounting bolt.
- Remove the rear shock absorber lower mounting bolt.



- A. Tie-Rod Front Mounting Bolt
- B. Rear Shock Absorber Lower Mounting Bolt
- C. Rocker Arm Pivot Shaft
- D. Rocker Arm

***Tie-Rod Installation Notes***

- Installation is the reverse of removal.
- Apply plenty of molybdenum disulfide grease to the inside of the needle bearings, and oil seals.
- Install the large eyelet with bearings on the swing arm so that the protruding side of the small eyelet faces inward.

- Pull out the rocker arm bolt, and remove the rocker arm.

## 11-24 SUSPENSION

### *Rocker Arm Installation Notes*

- Installation is the reverse of removal.
- Apply plenty of molybdenum disulfide grease to the inside of the rocker arm hole, outside of the sleeve, and spherical bearings.
- Tighten the following parts to the specified torque.

### **Tightening Torque:**

#### **Rocker Arm Nut:**

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

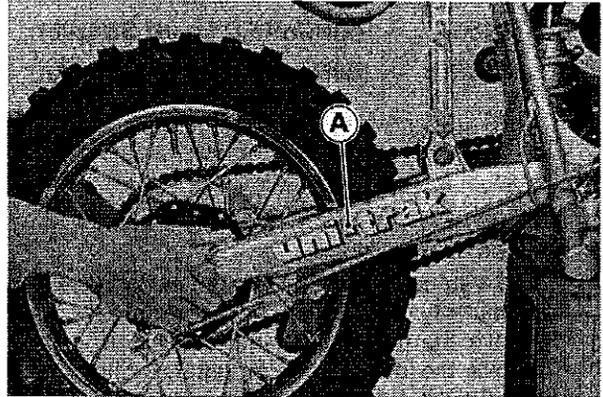
#### **Tie-rod Nut:**

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

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

## Uni-trak Maintenance

- Check the uni-trak component parts for wear periodically, or whenever excessive play is suspected.
- Put a sturdy block under the engine so that the rear wheel is raised off the ground.
  - Push and pull on the swing arm, up and down, to check for wear.

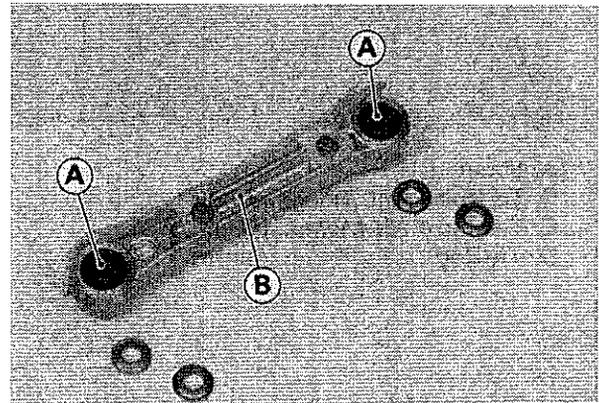


A. Swing Arm

- A small amount of play on the swing arm is normal and no corrective action is needed. However, if excessive play is felt, remove the uni-trak parts from the frame and check for wear.

### **Spherical Bearings:**

- Move the spherical bearings in the uni-trak link (KX60, KDX80) or rocker arm and tie-rod (KX80). The play must be under 0.7 mm.



A. Spherical Bearing

B. Uni-Trak Link

### **Spherical Bearing Play**

Service Limit
0.7 mm

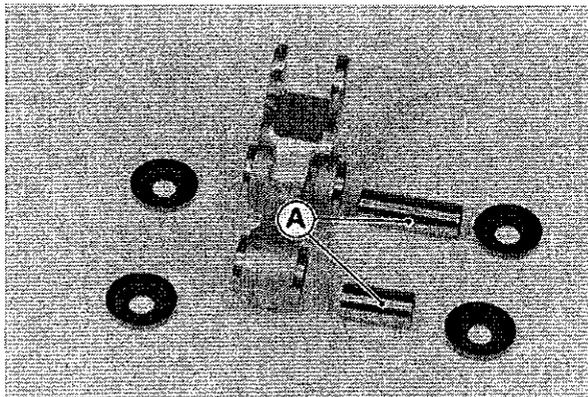
★ If any spherical bearing is worn past the service limit, replace it using a press and a suitable driver.

**WARNING**

○ Installation of new spherical bearing(s) in the uni-trak link may cause too stiff rear suspension. Testride the motorcycle slowly and prudently until the suspension becomes normal.

**Sleeve:**

- Pull out the sleeve of the uni-trak arm (KX60, KDX80) or rocker arm (KX80), and measure the outside diameter of the sleeve.
- ★ If the sleeve is worn past the service limit, replace the sleeve.



A. Sleeves

**Sleeve Outside Diameter**

**KX60, KDX80:**

**Standard:** 16.987–17.000 mm  
**Service Limit:** 16.95 mm

**KX80:**

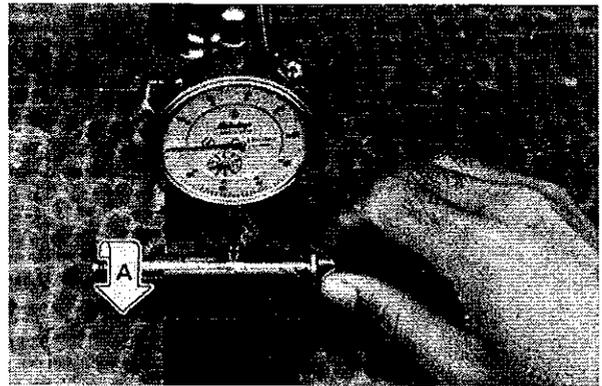
**Standard:** 15.987–16.000 mm  
**Service Limit:** 15.85 mm

**Rocker Arm (KX80):**

**Mounting Bolt Bend**

A bent bolt causes vibration, poor handling, and instability.

To measure bolt runout, remove the bolt, place it in V blocks, and set a dial gauge to the bolt at a point halfway between the blocks. Turn the bolt to measure the runout. The amount of dial variation is the amount of runout.



A. Turn

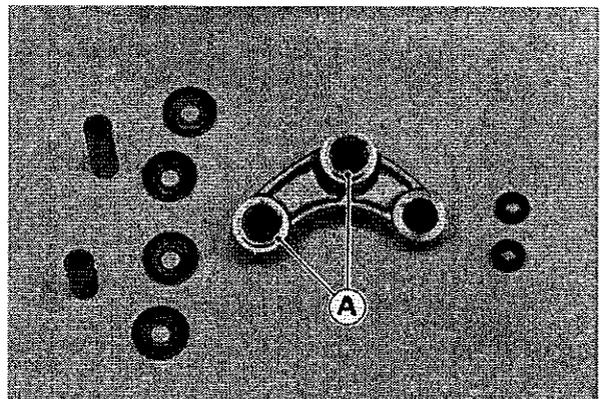
★ If runout exceeds the service limit, replace the bolt.

**Bolt Runout**

**Standard:** under 0.1 mm  
**Service Limit:** 0.2 mm

**Outer Sleeves Worn**

- Visually inspect the outer sleeve.
- ★ If the cloth is peeled off, replace the outer sleeve.



A. Outer Sleeves



# Steering

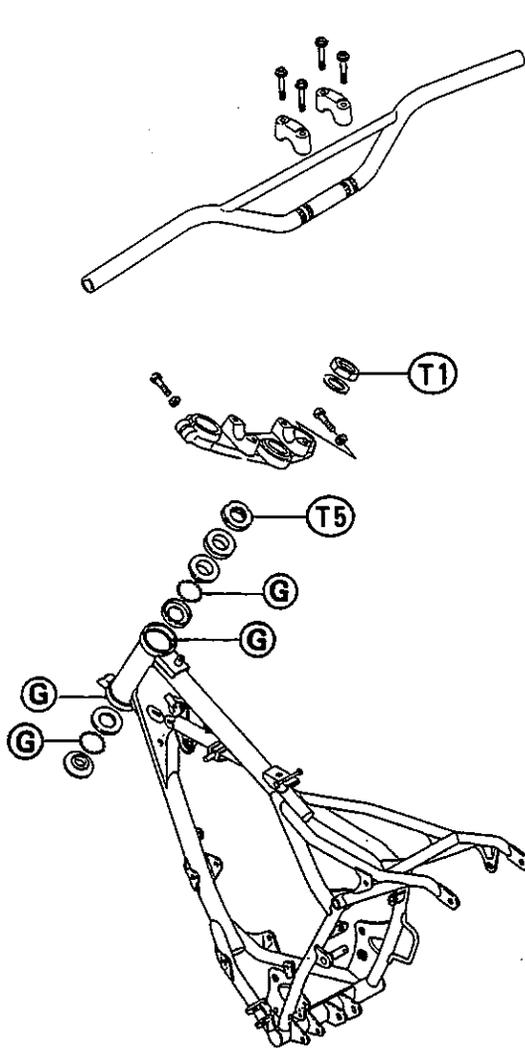
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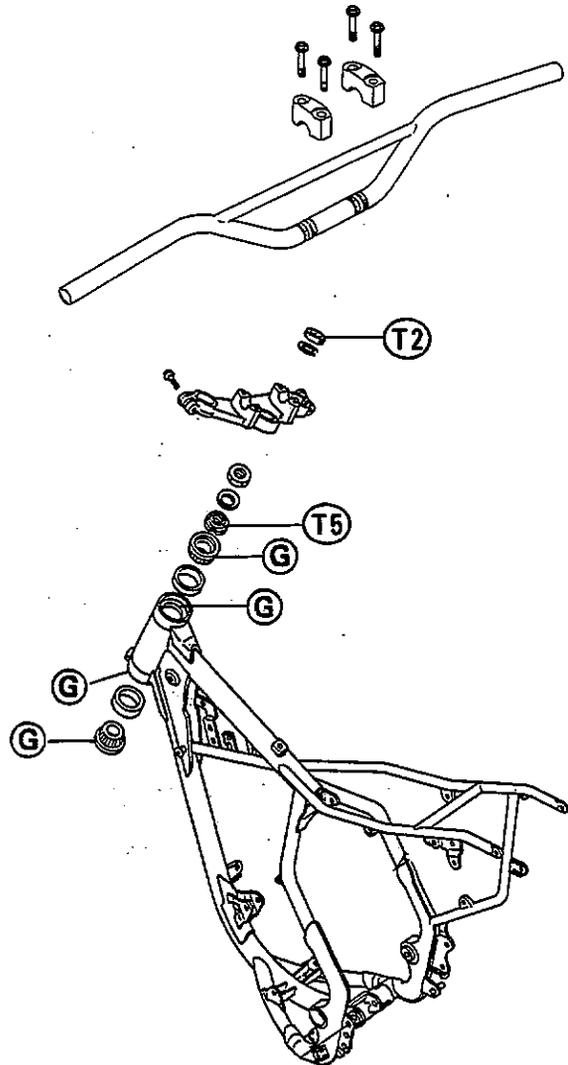
## 12-2 STEERING

.....  
**Exploded View**  
.....

**KX60, KDX80:**



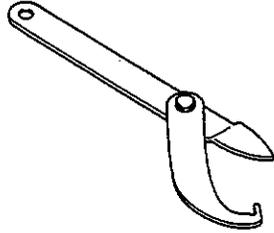
**KX80:**



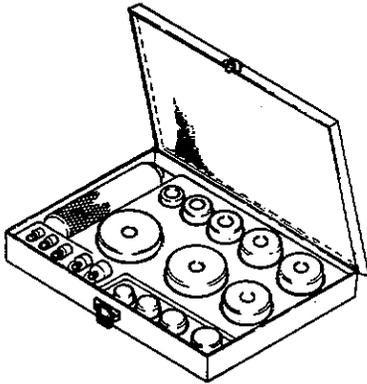
- G** : Apply grease liberally.
- T1** : 34 N-m (3.5 kg-m, 25 ft-lb)
- T2** : 44 N-m (4.5 kg-m, 33 ft-lb)
- T3** : 25 N-m (2.5 kg-m, 18 ft-lb)
- T4** : 17 N-m (1.7 kg-m, 12 ft-lb)
- T5** : Tighten all snugly, then loosen.  
Retighten to 4 N-m (0.4 kg-m, 35 in-lb)

.....  
**Special Tools**  
.....

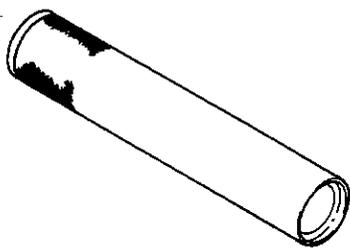
**Stem Nut Wrench:**  
57001-1100      92010-1007 (KX60 only)



**Bearing Driver Set:** 57001-1129



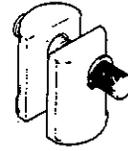
**Stem Bearing Driver:** 57001-137



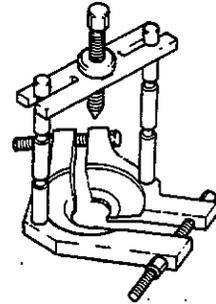
**Stem Bearing Driver Adapter:**  
57001-1074



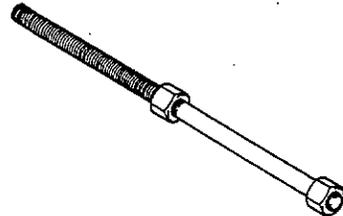
**Stem Bearing Remover:** 57001-1107



**Bearing Puller Assy:** 57001-158  
(Bearing Puller Pole: 57001-1190)



**Driver Press Shaft:** 57001-1075



**Driver:**  
57001-1106



57001-1076



**Adapter:** 57001-317

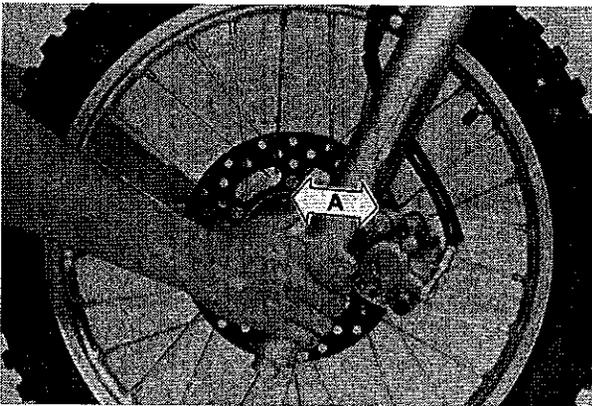


## 12-4 STEERING

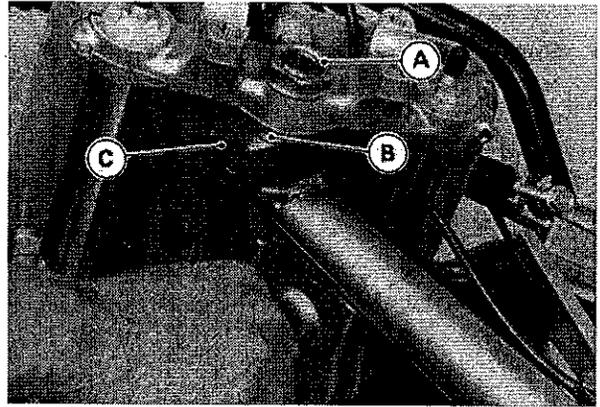
### Steering Adjustment

#### Steering Inspection

- Place a stand or block under the motorcycle so that the front wheel is raised off the ground.
- With the front wheel pointing straight ahead, alternately nudge each end of the handlebar. The front wheel should swing fully left and right from the force of gravity until the fork hits the stop.
- ★ If the steering binds or catches before the stop, check the routing of the cables, hoses, and harnesses.
- ★ If the steering feels tight, adjust or lubricate the steering.
- Feel for steering looseness by pushing and pulling the forks.
- ★ If you feel looseness, adjust the steering.



A. Push and Pull



- A. Stem Head Nut
- B. Stem Locknut
- C. Stem Nut Wrench: 57001-1100  
92010-1007 (KX60 only)

- Tighten the steering stem head nut to the specified torque.

#### Tightening Torque:

**KX60, KDX80 : 34 N-m (3.5 kg-m, 25 ft-lb)**

**KX80 : 44 N-m (4.5 kg-m, 33 ft-lb)**

- Tighten the front fork lower clamp bolts to the specified torque.

#### Tightening Torque:

**KX60, KDX80 : 25 N-m (2.5 kg-m, 18 ft-lb)**

**KX80 : 17 N-m (1.7 kg-m, 12 ft-lb)**

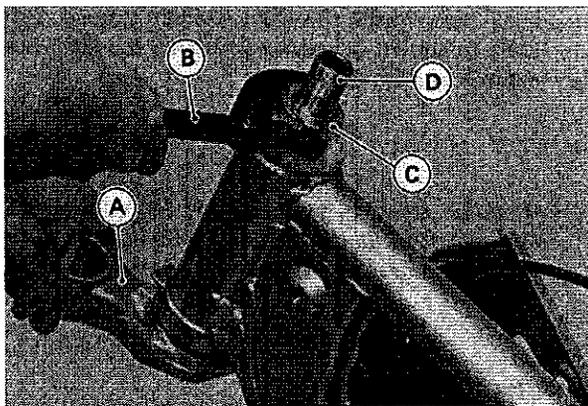
#### Steering Adjustment

- Loosen the front fork lower clamp bolts and stem head nut.
- Place a stand or block under the motorcycle so that the front wheel is raised off the ground.
- Turn the steering stem locknut with the stem nut wrench (special tool) to obtain the proper adjustment.
- ★ 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.

.....  
**Steering Removal/Installation**  
 .....

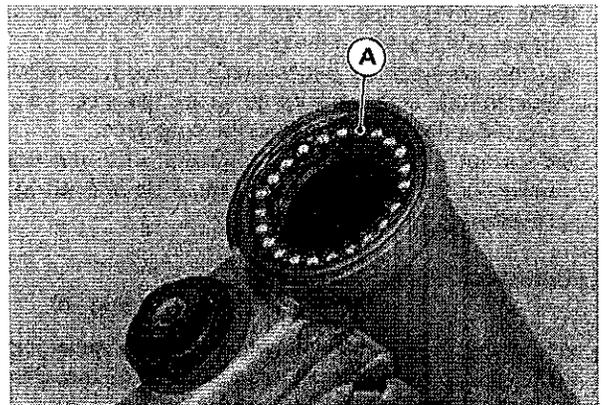
**Steering Stem Removal**

- Remove the following parts.
  - Front Wheel
  - Front Brake Cable Clamp (KX60, KDX80 only)
  - Brake Hose Clamp (KX80 only)
  - Caliper Mounting Bolts (KX80 only)
  - Master Cylinder Clamp (KX80 only)
  - Front Fender
  - Handlebar
  - Front Fork
- Remove the steering stem head nut and washer.
- Remove the steering stem head.
- Push up on the stem base, and remove the steering stem locknut with the stem nut wrench (special tool), then remove the steering stem and stem base.



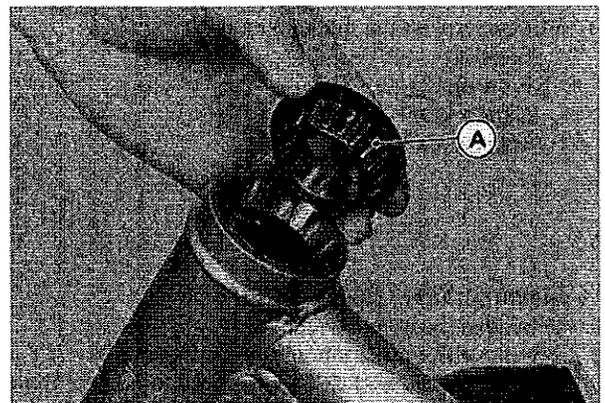
- A. Stem Base
- B. Stem Nut Wrench : 57001-1100  
92010-1007(KX60 only)
- C. Steering Stem Locknut
- D. Steering Stem

- For the KX60 and KDX80 models; as the stem is removed, some of the steel balls will drop out of the lower outer race.
- Remove the remaining ball bearings from the lower bearing outer race. For the KX60; there are 23 steel balls installed in the lower outer race. For the KDX80; there are 19 steel balls installed in the lower outer race.



A. Steel Balls

- Remove the steering stem cap, and upper inner race. Then remove the upper steel balls. There are 23 steel balls installed in the upper outer race.
- For the KX80; remove the upper tapered roller bearing inner race.



A. Tapered Roller Bearing

**Steering Stem Installation Notes**

- Installation is the reverse of removal.
- For the KX60 and KDX80 models; apply grease liberally to the upper and lower outer races in the head pipe so that the steel balls will stick in place during stem insertion, and install upper and lower steel balls.

**Bearing Ball Specifications**

Model	Position	Size	Number
KX60	Upper & Lower	3/16"	23
KDX80	Upper	3/16"	23
	Lower	1/4"	19

## 12-6 STEERING

- For the KX80, apply grease to the upper tapered roller bearing and put it on the outer race.
- Using the stem nut wrench (special tool), temporarily tighten the stem locknut to press the steel balls or tapered roller bearing against the outer race.
- Back out the stem locknut a fraction of a turn until it turns lightly and then tighten the stem locknut to the specified torque again.

### Tightening Torque:

4 N-m (0.4 kg-m, 35 in-lb)

- Connect the connectors, and route them according to the Cable and Wire Routing section in the General Information chapter.
- Tighten the stem head nut to the specified torque.

### Tightening Torque:

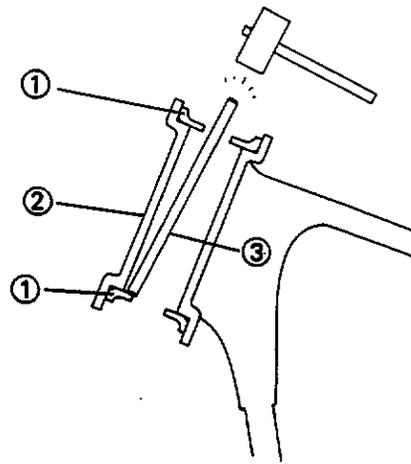
KX60, KDX80: 34 N-m (3.5 kg-m, 25 ft-lb)

KX80: 44 N-m (4.5 kg-m, 33 ft-lb)

- Install the parts removed (see appropriate chapters).
- Route the cables, hoses, and harnesses according to the Cable, Hose and Wire Routing section in the General Information chapter. The cables, hose, and wiring harnesses must not hinder handlebar movement.
- Check and adjust the following items.
  - Steering
  - Front Brake
  - Clutch Cable
  - Throttle Cable

### Steering Stem Race Removal

- Remove the steering stem.
- Remove the outer races from the head pipe.
  - For the KX60 and KDX80 models, to remove the outer races pressed into the head pipe, insert a bar into the head pipe, and hammer evenly around the circumference of the opposite race to drive it out.



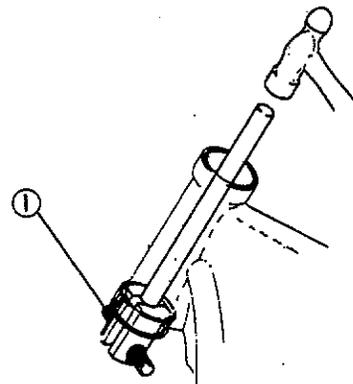
- 1. Outer Race
- 2. Head Pipe
- 3. Bar

- For the KX80, to remove the outer races pressed into the head pipe, install the stem bearing remover (special tool) as shown below, and hammer the stem bearing remover to drive it out.

### NOTE

- If either steering stem bearing is damaged, it is recommended that both the upper and lower bearings (including outer races) should be replaced with new ones.

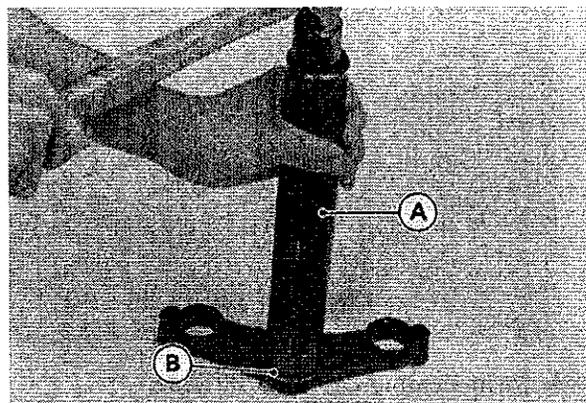
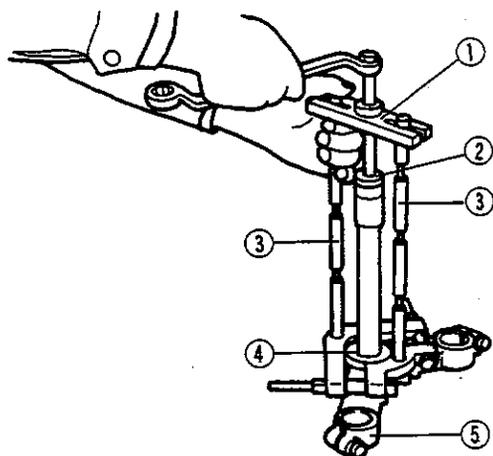
### Outer Race Removal



- 1. Stem Bearing Remover: 57001-1107

•Remove the lower inner race (with its grease seal) which is pressed onto the steering stem, with the steering stem bearing puller and adapters (special tools).

◦Drive the lower inner race onto the steering stem using the stem bearing driver (special tool).



A. Stem Bearing Driver: 57001-137  
B. Inner Race

1. Bearing Puller: 57001-158
2. Adapter: 57001-317
3. Pole: 57001-1190
4. Bearing Inner Race
5. Stem Base

**Steering Stem Race Installation Notes**

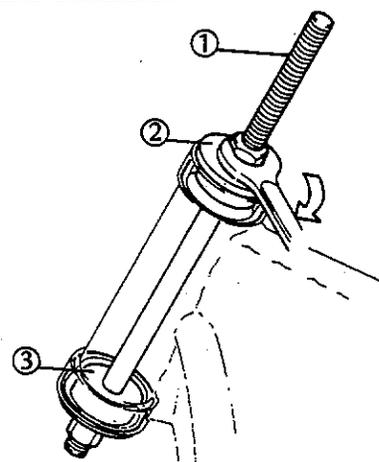
- Installation is the reverse of removal.
- For the KX60 and KDX80 models; apply engine oil to the outer races, and then drive them into the head pipe using the bearing driver set (special tool).

•For the KX80; apply grease to the outer races, and then drive them into the head pipe using the drivers and the driver press shaft (special tools).

**Outer Race Installation**



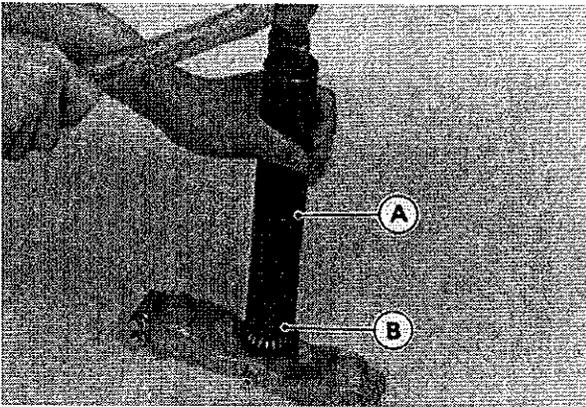
A. Bearing Driver Set: 57001-1129



1. Driver Press Shaft: 57001-1075
2. Driver: 57001-1106
3. Driver: 57001-1076

## 12-8 STEERING

- Apply grease to the lower tapered roller bearing, and drive it onto the steering stem using the stem bearing driver and adapter (special tools).



A. Stem Bearing Driver: 57001-137  
B. Adapter: 57001-1074

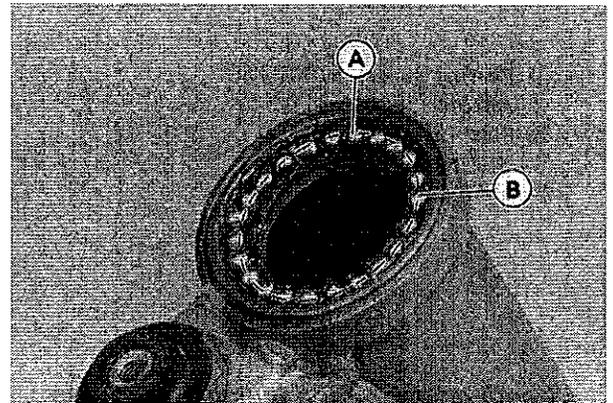
- Apply grease to the upper tapered roller bearing and put it on the outer race.
- Refer to Steering Stem Installation Notes.

## Steering Maintenance

### Steering Stem Bearing Lubrication

- Remove the steering stem (see Steering Stem Removal).

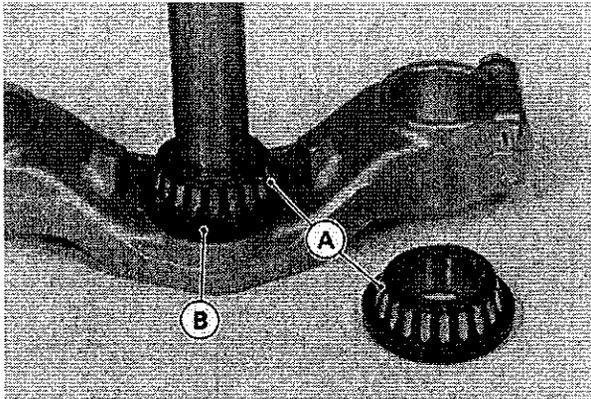
- For the KX60 and KDX80 models; wipe the old grease off from upper and lower bearing races and steel balls, washing them in a high flash-point solvent if necessary.
- Inspect the bearing races and the steel balls.
- ★ Replace the worn or damaged parts if necessary.
- Apply grease liberally to the upper and lower outer races in the head pipe and steel balls.



A. Steel Balls  
B. Grease

- For the KX80; using a high flash-point solvent, wash the upper and lower tapered rollers in the cages, and wipe the upper and lower outer races, which are press-fitted into the frame head pipe, clean off grease and dirt.
- Visually check the outer races and the rollers.
- ★ Replace the bearing assemblies if they show wear or damages.

- Pack the upper and lower tapered roller bearings in the cages with grease, and apply a light coat of grease to the upper and lower outer races.



A. Steering Stem (tapered roller) Bearings  
B. Grease Seal

- Install the steering stem, and adjust the steering (see Steering Stem Installation, Steering Adjustment).

#### ***Bearing Wear, Damage***

- For the KX60 and KDX80 models; wipe bearings and races clean of grease and dirt.
- Visually check the outer races.
- ★If the balls or races are worn, or if either race is dented, replace both races and all the balls for that bearing as a set.
- For the KX80; using a high flash-point solvent, wash the upper and lower tapered rollers in the cages, and wipe the upper and lower outer races, which are press-fitted into the frame head pipe, clean off grease and dirt.
- Visually check the outer races and the rollers.
- ★Replace the bearing assemblies if they show damage.

#### ***Steering Stem Warp***

- Whenever the steering stem is removed, or if the steering cannot be adjusted for smooth action, check the steering stem for straightness.
- ★If the steering stem shaft is bent, replace the steering stem.



# Electrical System

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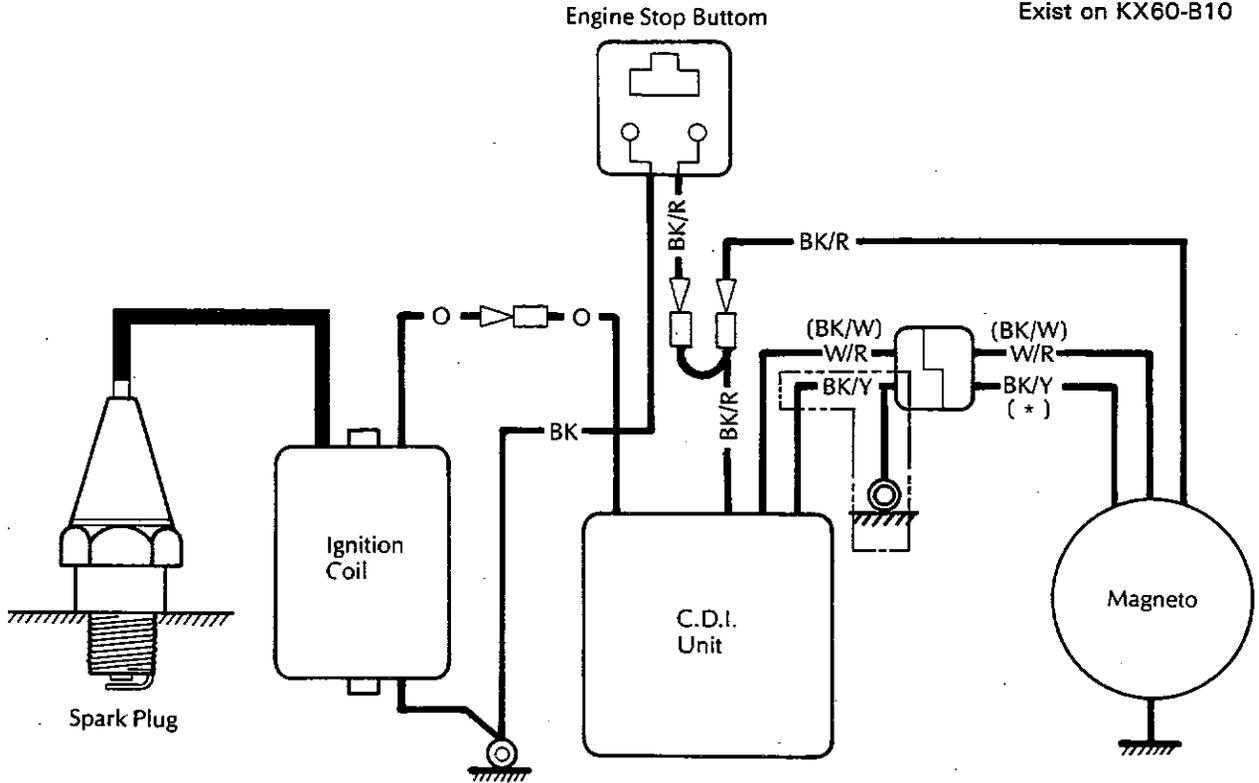
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# 13-2 ELECTRICAL SYSTEM

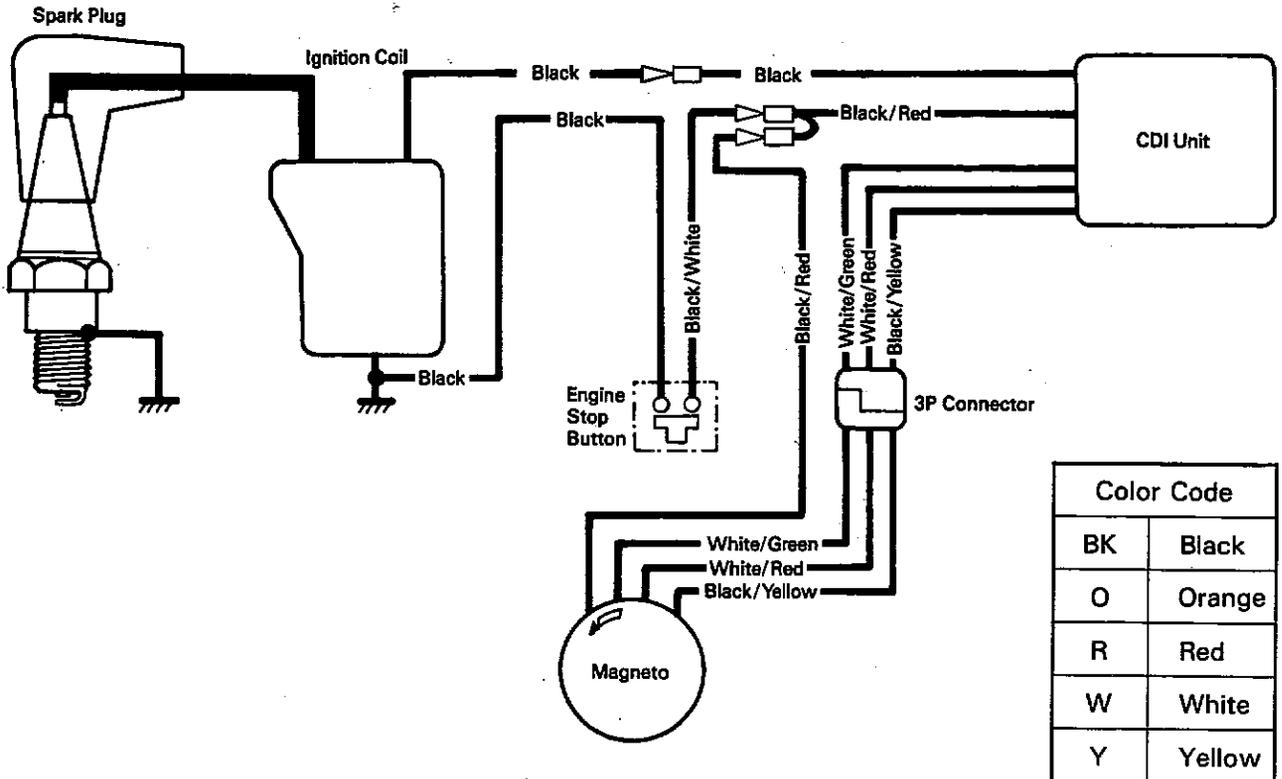
## Wiring Diagram

**KX60, KDX80:**

( ) & [ ] : KX60-B10 Only  
 ( \* ) : This "LEAD" is Not Exist on KX60-B10

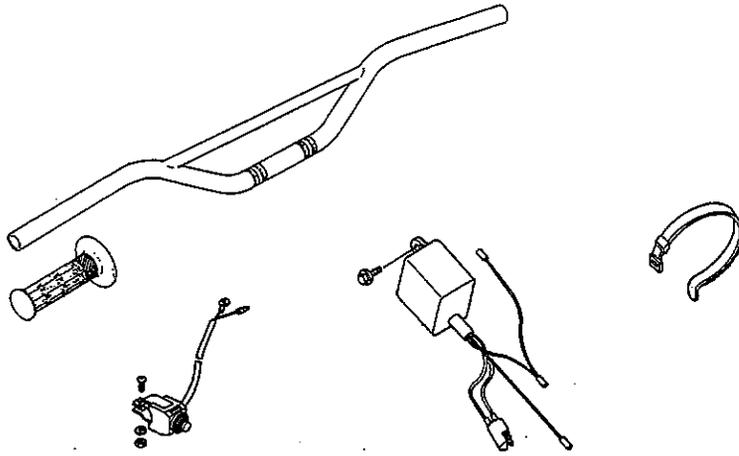


**KX80:**

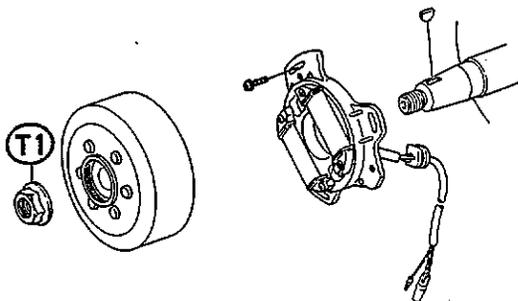
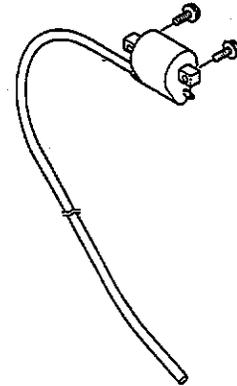
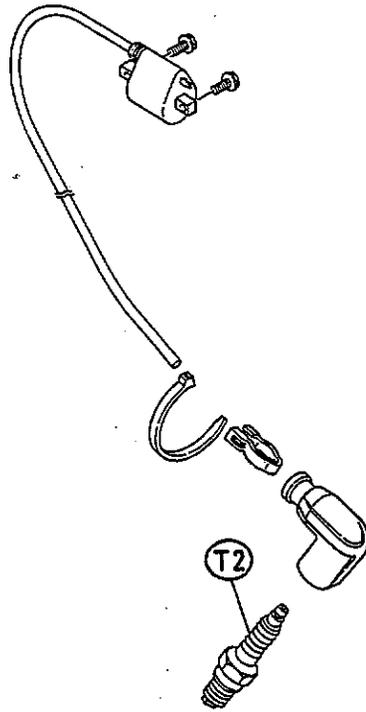
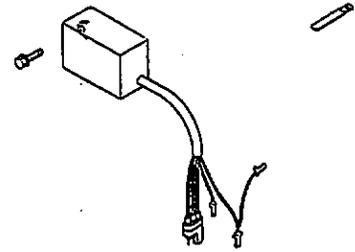


Explosion View

KX60, KDX80:



KX80:



T1: 29 N-m (3.0 kg-m, 22 ft-lb)  
T2: 27 N-m (2.8 kg-m, 20 ft-lb)

## 13-4 ELECTRICAL SYSTEM

### Specifications

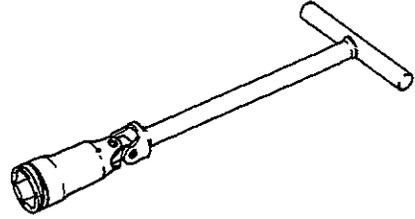
Item	Standard
<b>Ignition System:</b>	
Ignition timing: KX60 KX80 KDX80	18.5° BTDC @ 6000 r/min (rpm) 12° BTDC @ 12000 r/min (rpm) 25° BTDC @ 6000 r/min (rpm)
Ignition coil: 3 needle arcing distance Primary winding resistance Secondary winding resistance	7 mm or more 0.8 – 1.2 Ω 4.9 – 6.9 kΩ
CDI unit internal resistance	refer to 13 – 13
Spark plug: KX60 KX80 KDX80 Spark plug gap	NGK B9EG NGK B9EG (C)(U) NGK BR9EG NGK B8ES NGK B9EG and BR9EG...0.5 – 0.6 mm NGK B8ES...0.7 – 0.8 mm

(C): Canadian model

(U): U.K. model

## ELECTRICAL SYSTEM 13-5

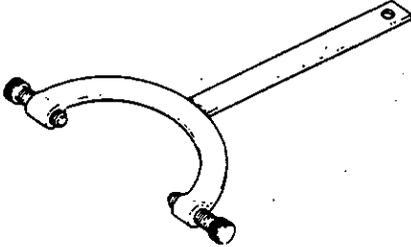
Spark Plug Wrench, Hex 21: 57001-110



.....  
**Special Tools**  
.....

Along with common hand tools, the following more specialized tools are required for complete electrical system servicing.

Rotor Holder: 57001-1248



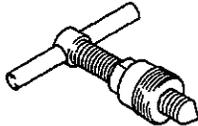
### NOTE

○The flywheel holder (P/N 57001-1313) can be used instead of the rotor holder (P/N 57001-1248) and adapter "A" (P/N 57001-1108).

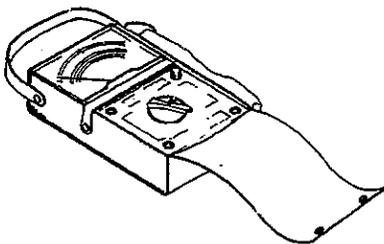
Rotor Holder Adapter "A": 57001-1108



Flywheel Puller: 57001-252



Hand Tester: 57001-983



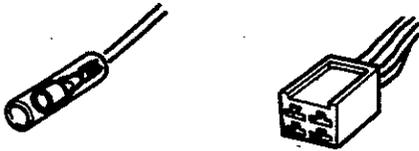
## 13-6 ELECTRICAL SYSTEM

### Precautions

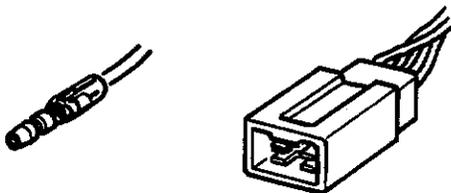
There are a number of important precautions that are musts when servicing the electrical system. Learn and observe all the rules below.

- The electrical parts should never be struck sharply, as with a hammer, or allowed to fall on a hard surface. Such a shock to the parts can damage them.
- Troubles may involve one or in some cases all items. Never replace a defective part without determining what CAUSED the failure. If the failure was caused by some other item or items, they too must be repaired or replaced, or the new replacement will soon fail again.
- Make sure all connectors in the circuit are clean and tight, and examine wires for signs of burning, fraying, etc. Poor wires and bad connections will affect electrical system operation.
- Measure coil and winding resistance when the part is cold (at room temperature).
- Electrical Connectors

### Female Connectors



### Male Connectors



### Electrical Wiring

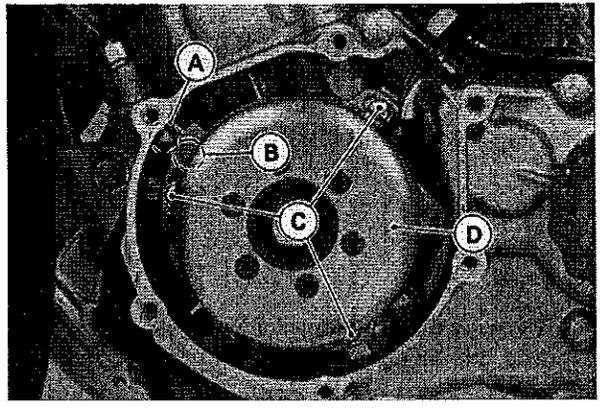
#### Wiring Inspection

- Visually inspect the wiring for signs of burning, fraying, etc.
- ★If any wiring is poor, replace the damaged wiring.
- Pull each connector apart and inspect it for corrosion, dirt, and damage.
- ★If the connector is corroded or dirty, clean it carefully. If it is damaged, replace it.
- Check the wiring for continuity.
- Use the wiring diagram to find the ends of the lead which is suspected of being a problem.
- Connect an ohmmeter between the ends of the leads.
- Set the meter to the  $\times 1\Omega$  range, and lead the meter.
- ★If the meter does not read zero  $\Omega$ , the lead is defective.
- Replace the lead or the wiring harness if necessary.

**Ignition Timing**

**Ignition Timing Adjustment**

- Remove the magneto cover.
- Check to see if the mark on the magneto stator is aligned with the mark on the crankcase.
- ★ If the marks are not aligned, loosen the magneto stator screws and turn the magneto stator.



A. Timing Mark (Crankcase) C. Screws  
 B. Timing Mark (Stator Plate) D. Magneto Flywheel

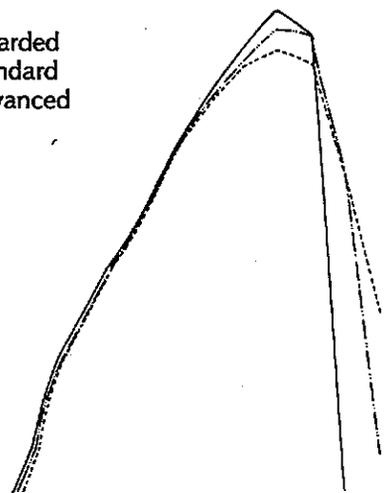
- Tighten the screws securely.
- Install the magneto cover.

**For the KX80:**

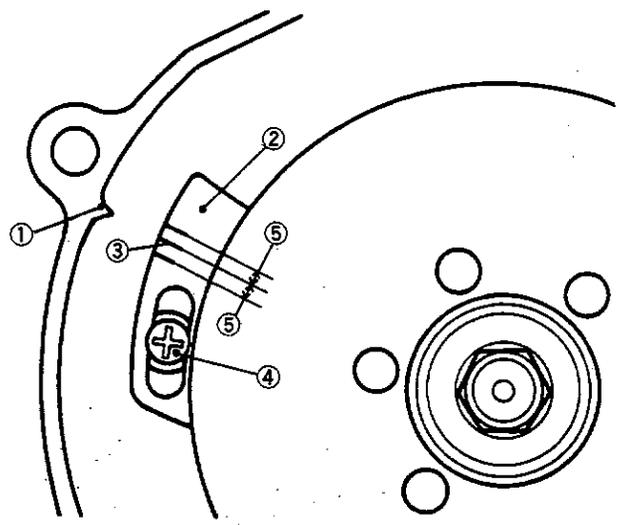
The ignition timing can be adjusted to change the power band to suit the rider's preference or ability.

**Power Curve**

- Retarded
- - - Standard
- · - Advanced



- Remove the magneto cover.
- The timing mark on the magneto stator will be aligned with the mark on the crankcase.
- Scribe a line on the stator plate 2 mm (0.08 in) apart from the timing mark on both sides.

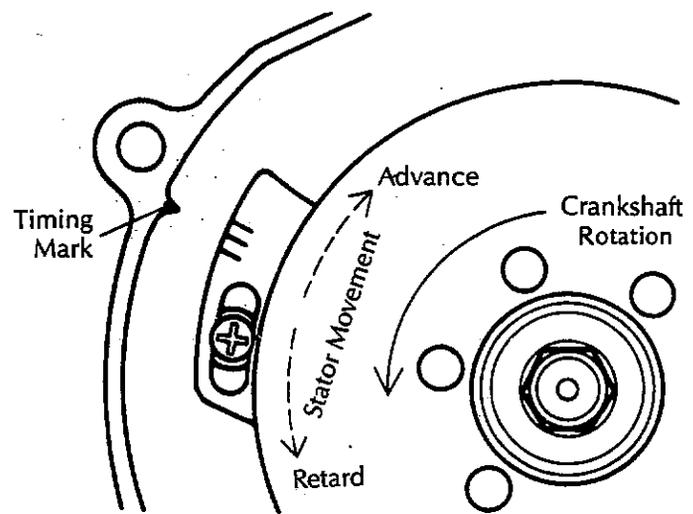


1. Timing Mark (Crankcase) 4. Screw  
 2. Stator Plate 5. 2 mm (0.08 in)  
 3. Standard Timing Mark

- Loosen the stator screws.
- Adjust the timing by shifting the stator position within the two lines just scribed.

**NOTE**

For best engine performance, it is very important to adjust the ignition timing within the adjustable range just explained.



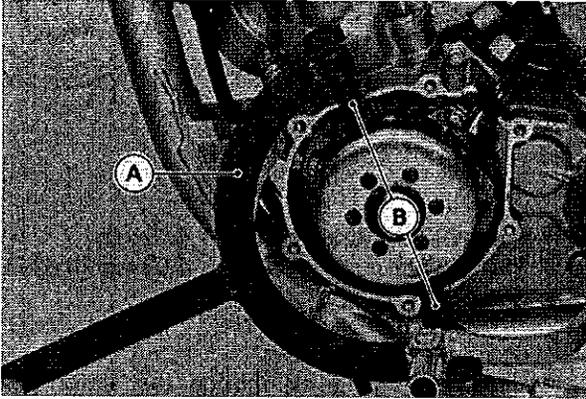
- Tighten the stator screws securely.
- Install the magneto cover.
- Test ride the motorcycle and readjust the ignition timing if necessary.

## 13-8 ELECTRICAL SYSTEM

### Flywheel Magneto

#### *Flywheel Magneto Removal*

- Remove the following parts.
  - Seat
  - Right and Left Side Covers.
  - Radiator Cover
  - Fuel Tank
  - Engine Sprocket Cover
- Hold the flywheel steady with the rotor holder and adapter "A" (special tools), and remove the flywheel nut.

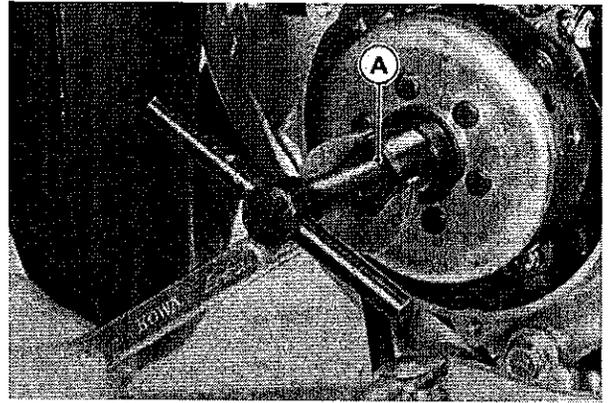


A. Flywheel Holder: 57001-1248  
B. Adapter "A": 57001-1108

- Remove the rotor holder and adapter "A".
- Screw the flywheel puller (special tool) into the flywheel by turning it counterclockwise (left-hand thread).
- Remove the flywheel from the crankshaft by turning in the puller center bolt and tapping the head of the bolt lightly with a hammer, while holding the puller body steady. There is a woodruff key in the crankshaft tapered portion.

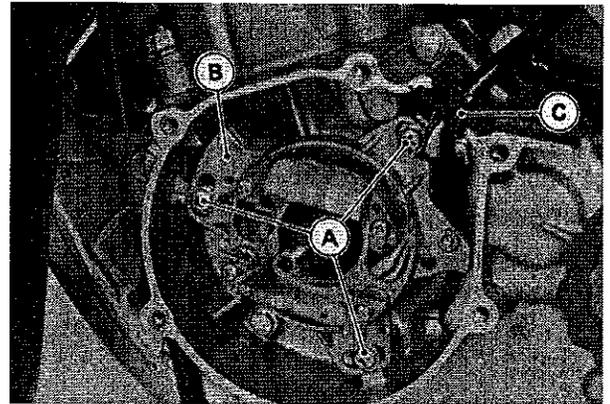
#### **CAUTION**

- Never strike the grab bar or the flywheel itself. Striking the bar can bend it. If the flywheel is struck, the magnets may lose their magnetism.



A. Flywheel Puller: 57001-252

- Unscrew the mounting screws, and remove the stator and the wiring grommet.

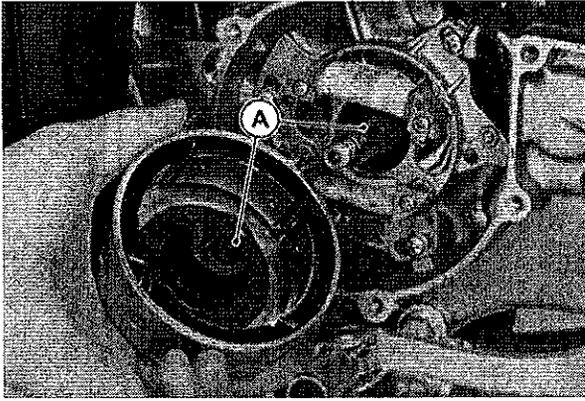


A. Mounting Screws  
B. Stator

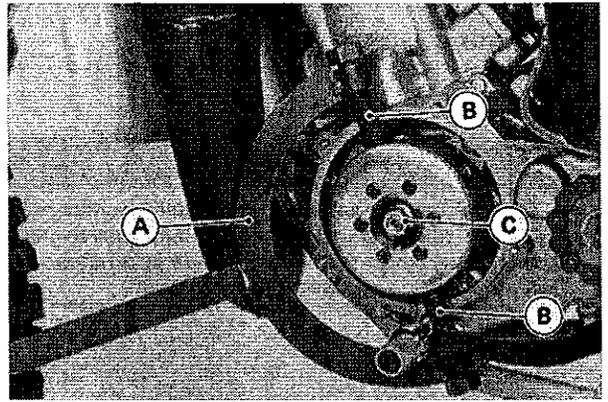
C. Wiring Grommet

#### *Flywheel Magneto Installation*

- Installation is the reverse of removal. Note the following:
- Using a high flash-point solvent, clean off any oil or dirt that may be on the crankshaft taper or in the hole in the flywheel. Dry them with a clean cloth.



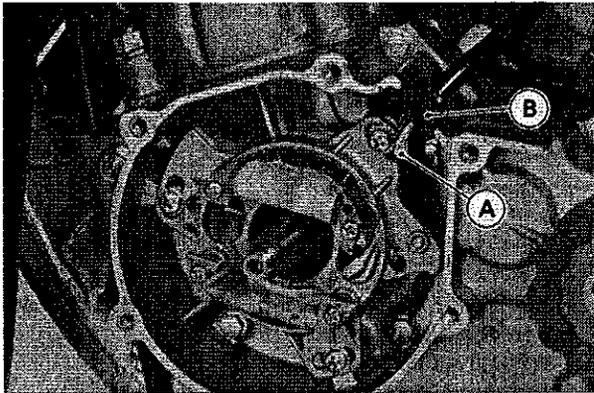
A. Clean Off



A. Rotor Holder: 57001-1248      C. Flywheel Nut  
 B. Adapter "A": 57001-1108

◦Replace the gasket if it is hardened or damaged.

◦Set the stator wiring grommet securely in the notch in the left crankshaft half, and route the wires according to the Wire Routing section in the General Information chapter.



A. Stator Lead      B. Grommet

### *Flywheel Magneto Inspection*

There are three types of magneto problems: short, open (wire burned out), or loss in flywheel magnetism. A short or open in one of the coil wires will result either a low output, or no output at all. A loss in flywheel magnetism, which may be caused by dropping or hitting the flywheel, or just by aging, will result in low output. Inspect the coils and the flywheel (see Ignition System).

- Fit the woodruff key securely in the slot in the crankshaft before installing the flywheel.
- Hold the flywheel steady with the rotor holder and adapter "A" (special tools), and tighten the flywheel nut to the specified torque.

### **Tightening Torque:**

**29 N-m (3.0 kg-m, 22 ft-lb)**

## 13-10 ELECTRICAL SYSTEM

### Ignition System

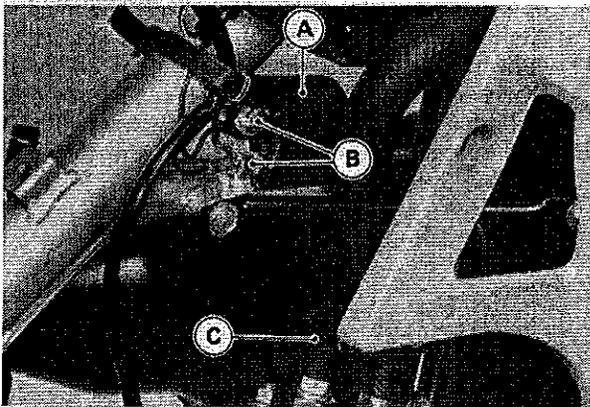
#### Safety Instruction:

#### ⚠ WARNING

The ignition system produces extremely high voltage. Do not touch the spark plugs, high tension coils, or spark plug leads while the engine is running, or you could receive a severe electrical shock.

#### Ignition Coil Removal

- Remove the following parts.
  - Seat
  - Radiator Cover (KX80 only)
  - Fuel Tank
- Disconnect the ignition coil primary leads.
- Pull the plug cap off the spark plug.
- Unscrew the mounting bolt, and remove the ignition coil.



A. Ignition Coil  
B. Primary Leads  
C. Plug Cap

#### Ignition Coil Installation

- Installation is the reverse of removal.

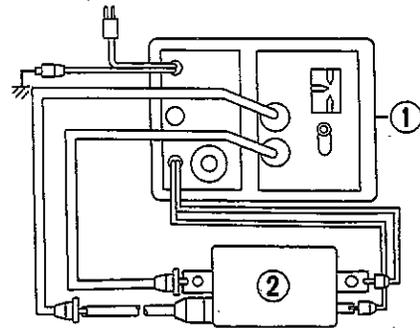
#### Ignition Coil Inspection

##### Measuring arcing distance:

The most accurate test for determining the condition of the ignition coil is made by measuring arcing distance with a suitable commercially available coil tester.

- Remove the ignition coil.
- Connect the ignition coil (with the spark plug cap left installed on the spark plug lead) to the tester, and measure the arcing distance.

#### Ignition Coil Test



1. Ignition Coil Tester      2. Ignition Coil

#### ⚠ WARNING

To avoid extremely high voltage shocks, do not touch the coil or lead.

- ★ If the distance reading is less than the specified value, the ignition coil or spark plug cap is defective.

#### Ignition Coil Arcing Distance

7 mm or more

- To determine which part is defective, measure the arcing distance again with the spark plug cap removed from the ignition coil lead.
- ★ If the arcing distance is subnormal as before, the trouble is with the ignition coil itself. If the arcing distance is now normal, the trouble is with the spark plug cap.

##### Measuring coil resistance:

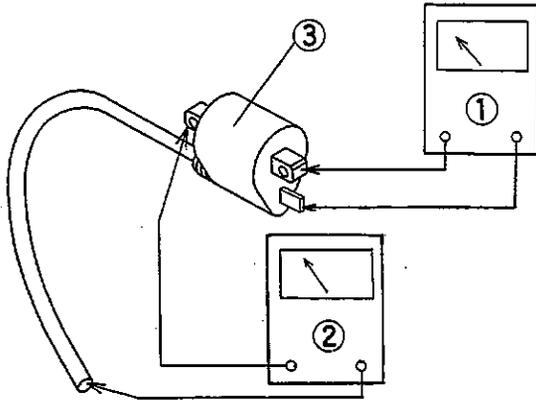
If the arcing tester is not available, the coil can be checked for a broken or badly shorted winding with an ohmmeter. However, an ohmmeter cannot detect layer shorts and shorts resulting from insulation breakdown under high voltage.

- Remove the ignition coil.
- Measure the primary winding resistance.
  - Connect an ohmmeter between the coil terminals.
  - Set the meter to the  $\times 1 \Omega$  range, and read the meter.
- Measure the secondary winding resistance.
  - Remove the plug cap by turning it counterclockwise.
  - Connect an ohmmeter between the spark plug lead and the ground lead terminal.
  - Set the meter to the  $\times 1 \text{ k}\Omega$  range, and read the meter.
- ★ If the meter does not read as specified, replace the coil.

#### Ignition Coil Winding Resistance

Primary windings: 0.8 ~ 1.2  $\Omega$   
Secondary windings: 4.9 ~ 6.9  $\text{k}\Omega$

**Ignition Coil Winding Resistance**



1. Measure primary winding resistance.
2. Measure secondary winding resistance.
3. Ignition Coil

- ★ If the meter reads as specified, the ignition coil windings are probably good. However, if the ignition system still does not perform as it should after all other components have been checked, test replace the coil with one known to be good.
- Check the spark plug lead for visible damage.
- ★ If the spark plug lead is damaged, replace the coil.

**Spark Plug Cleaning and Inspection**

- Remove the spark plug, and visually inspect it.
- Clean the spark plug, preferably in a sandblasting device, and then clean off any abrasive particles. The plug may also be cleaned using a high flash-point solvent and a wire brush or other suitable tool.
- ★ If the spark plug electrodes are corroded or damaged, or if the insulator is cracked, replace the plug. Use the standard spark plug.

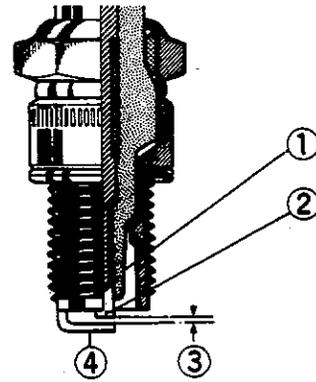
**Spark Plug Gap Inspection**

- Measure the gap with a wire-type thickness gauge.
- ★ If the gap is incorrect, carefully bend the side electrode with a suitable tool to obtain the correct gap.

**Spark Plug Gap**

NGK B9EG or BR9EG: 0.5 – 0.6 mm  
 NGK B8ES: 0.7 – 0.8 mm

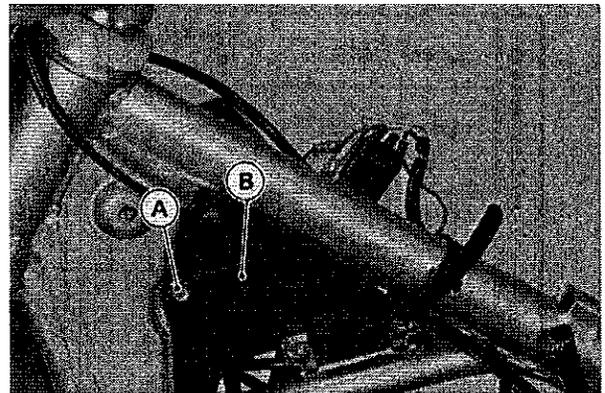
**Spark Plug Gap**



1. Insulator
2. Center Electrode
3. Plug Gap
4. Side Electrode

**CDI Unit Inspection**

- Remove the seat.
- Remove the fuel tank.
- Disconnect the CDI unit lead.
- Unscrew the mounting bolt, and remove the CDI unit.



A. Mounting Bolt      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  $\times 1 \text{ k}\Omega$  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.

**NOTE**

○ Asterisk(\*): When repeating the test indicated with an asterisk, wait for more than 30 minutes before next trail to get a reliable result.

## 13-12 ELECTRICAL SYSTEM

### CDI Unit Test Using a Multimeter

#### KX60, KDX80:

		Tester Positive (+) Lead Connection			
Tester Negative (-) Lead Connection	Lead Color	Black/Red (Exciter)	White/Red (Pickup)	Black (Ign. Coil)	Black/Yellow (Ground)
	Black/Red (Exciter)		$\infty$	*500 k $\Omega$ ↓ $\infty$	$\infty$
	White/Red (Pickup)	13.8 ~ 14 k $\Omega$		*500 k $\Omega$ ↓ $\infty$	6 ~ 7 k $\Omega$
	Black (Ign. Coil)	$\infty$	$\infty$		$\infty$
	Black/Yellow (Ground)	2.8 ~ 3.4 k $\Omega$	$\infty$	*500 k $\Omega$ ↓ $\infty$	

#### KX80:

		Tester Positive (+) Lead Connection				
Tester Negative (-) Lead Connection	Lead Color	Black/Red (Exciter)	White/Red (Pickup)	White/Green (Pickup)	Black (Ign. Coil)	Black/Yellow (Ground)
	Black/Red (Exciter)		*500 k $\Omega$ ↓ $\infty$	*500 k $\Omega$ ↓ $\infty$	*500 k $\Omega$ ↓ $\infty$	*500 k $\Omega$ ↓ $\infty$
	White/Red (Pickup)	$\infty$		6.5 - 11 k $\Omega$	$\infty$	6.5 - 11 k $\Omega$
	White/Green (Pickup)	$\infty$	5.0 - 7.5 k $\Omega$		$\infty$	0
	Black (Ign. Coil)	$\infty$	12 - 22 k $\Omega$	2.6 - 4.0 k $\Omega$		2.6 - 4.0 k $\Omega$
	Black/Yellow (Ground)	$\infty$	5.0 - 7.5 k $\Omega$	0	$\infty$	

#### 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

Model	Connections	Reading
KX60	Black/Red—Black/Yellow	368—552 $\Omega$
KDX80	White/Red—Black/Yellow	10—14.5 $\Omega$
KX80	Black/Red—Black/Yellow	432—648 $\Omega$
	White/Red—White/Green	4.0—6.0 $\Omega$

#### •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 are grounded. Check the stator and the leads, and fix or replace the damaged parts.

# Appendix

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## 14-2 APPENDIX

### Troubleshooting Guide

#### NOTE

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

#### Engine Doesn't Start; Starting Difficulty:

##### Engine won't turn over:

- Cylinder, piston seizure
- Crankshaft seizure
- Connecting rod small end seizure
- Connecting rod big end seizure
- Transmission gear or bearing seizure
- Kick shaft return spring broken
- Kick ratchet gear not engaging

##### No fuel flow:

- No fuel in tank
- Fuel tap turned off
- Tank cap air vent obstructed
- Fuel tap clogged
- Fuel line clogged
- Float valve clogged

##### Engine flooded:

- Float level too high
- Float valve worn or stuck open
- Starting technique faulty  
(when flooded, kick with the throttle fully open to allow more air to reach the engine.)

##### No spark; spark weak:

- Spark plug dirty, broken, or maladjusted
- Spark plug cap or high tension wiring trouble
- Spark plug cap not in good contact
- Spark plug incorrect
- CDI unit trouble
- Ignition coil trouble
- Ignition coil resistor open
- Flywheel magneto damaged
- Wiring shorted or open

##### Fuel/air mixture incorrect:

- Idle adjusting screw maladjusted
- Pilot (slow) jet or air passage clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter jet clogged

##### Compression Low:

- Spark plug loose
- Cylinder head not sufficiently tightened down
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/land clearance excessive

- Cylinder head gasket damaged
- Cylinder head warped
- Cylinder base gasket damaged
- Reed valve damaged
- Cylinder nut loose

#### Poor Running at Low Speed:

##### Spark weak:

- Spark plug dirty, broken, or maladjusted
- Spark plug cap or high tension wiring trouble
- Spark plug cap shorted or not in good contact
- Spark plug incorrect
- CDI unit trouble
- Ignition coil trouble
- Flywheel magneto damaged

##### Fuel/air mixture incorrect:

- Idle adjusting screw maladjusted
- Pilot (slow) jet or air passage clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter plunger stuck open
- Float level too high or too low
- Fuel tank air vent obstructed
- Carburetor holder loose
- Air cleaner duct loose

##### Compression low:

- Spark plug loose
- Cylinder head not sufficiently tightened down
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/land clearance excessive
- Cylinder head gasket damaged
- Cylinder head warped
- Cylinder base gasket damaged
- Reed valve damaged
- Cylinder nut loose

##### Other:

- CDI unit trouble
- Transmission oil viscosity too high
- Brake dragging

#### Poor Running or No Power at High Speed:

##### Firing incorrect:

- Spark plug dirty, damaged, or maladjusted
- Spark plug cap or high tension wiring damaged
- Spark plug cap shorted or not in good contact
- Spark plug incorrect
- CDI unit trouble
- Ignition coil trouble
- Flywheel magneto damaged

**Fuel/air mixture incorrect:**

- Main jet clogged or wrong size
- Jet needle or needle jet worn
- Jet needle clip in wrong position
- Float level too high or too low
- Air jet or air passage clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter plunger stuck open
- Fuel to carburetor insufficient
- Water or foreign matter in fuel
- Fuel to carburetor insufficient
- Water or foreign matter in fuel
- Fuel tank air vent obstructed
- Carburetor holder loose
- Air cleaner duct loose
- Fuel tap clogged
- Fuel line clogged

**Compression low:**

- Spark plug loose
- Cylinder head not sufficiently tightened down
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/land clearance excessive
- Cylinder head gasket damaged
- Cylinder head warped
- Cylinder base gasket damaged
- Reed valve damaged
- Cylinder nut loose

**Engine rpm will not rise properly:**

- Starter plunger stuck open
- Float level too high or too low
- Main jet clogged
- Throttle valve does not fully open
- Air cleaner clogged
- Muffler clogged
- Water or foreign matter in fuel
- Cylinder exhaust port clogged
- Brake dragging
- Clutch slipping
- Overheating
- Transmission oil level too high
- Transmission oil viscosity too high
- Crankshaft bearing worn or damaged

**Knocking:**

- Carbon built up in combustion chamber
- Fuel poor quality or incorrect
- Spark plug incorrect
- CDI unit trouble

**Overheating:****Firing incorrect:**

- Spark plug dirty, broken, or maladjusted
- Spark plug incorrect
- CDI unit trouble

**Fuel/air mixture incorrect:**

- Main jet clogged or wrong size
- Fuel level in carburetor float bowl too low
- Carburetor holder loose
- Air cleaner poorly sealed, or missing
- Air cleaner duct poorly sealed
- Air cleaner clogged

**Compression high:**

- Carburetor built up in combustion chamber

**Engine load faulty:**

- Brake dragging
- Clutch slipping
- Transmission oil level too high
- Transmission oil viscosity too high

**Lubrication inadequate;**

- Transmission oil level too low
- Transmission oil poor quality or incorrect

**Coolant incorrect:**

- Coolant level too low
- Coolant deteriorated

**Cooling system component incorrect:**

- Radiator clogged
- Radiator cap trouble
- Water pump not rotating

**Clutch Operation Faulty:****Clutch slipping:**

- No clutch lever play
- Clutch cable maladjusted
- Clutch inner cable catching
- Friction plate worn or warped
- Steel plate worn or warped
- Clutch spring broken or weak
- Clutch release mechanism trouble
- Clutch hub or housing unevenly worn

**Clutch not disengaging properly:**

- Clutch lever play excessive
- Clutch plate warped or too rough
- Clutch spring tension uneven
- Transmission oil deteriorated
- Transmission oil viscosity too high
- Transmission oil level too high
- Clutch housing frozen on drive shaft
- Clutch release mechanism trouble

**Gear Shifting Faulty:****Doesn't go into gear; shift pedal doesn't return:**

- Clutch not disengaging
- Shift fork bent or seized
- Gear stuck on the shaft
- Gear positioning lever binding
- Shift return spring weak or broken
- Shift return spring pin loose
- Shift mechanism arm spring broken
- Shift mechanism arm broken
- Shift drum broken

## 14-4 APPENDIX

### **Jumps out of gear:**

- Shift fork worn
- Gear groove worn
- Gear dogs and/or dog holes worn
- Shift drum groove worn
- Gear positioning lever spring weak or broken
- Shift fork pin worn
- Drive shaft, output shaft, and/or gear splines worn

### **Overshifts:**

- Gear positioning lever spring weak or broken
- Shift mechanism arm spring broken

### **Abnormal Engine Noise:**

#### **Knocking:**

- CDI unit trouble
- Carbon built up in combustion chamber
- Fuel poor quality or incorrect
- Spark plug incorrect
- Overheating

#### **Piston slap:**

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

#### **Other noise:**

- Connecting rod small end clearance excessive
- Connecting rod big end clearance excessive
- Piston ring worn, broken or stuck
- Piston seizure, damage
- Cylinder head gasket leaking
- Exhaust pipe leaking at cylinder head connection
- Crankshaft runout excessive
- Engine mounts loose
- Crankshaft bearing worn
- Primary gear worn or chipped

### **Abnormal Drive Train Noise:**

#### **Clutch noise:**

- Clutch housing/friction plate clearance excessive
- Clutch housing gear/primary gear backlash excessive
- Metal chip jammed in clutch housing gear teeth

#### **Transmission noise:**

- Crankcase bearing worn or damaged
- Transmission gear worn or chipped
- Metal chip jammed in gear teeth
- Transmission oil insufficient or too thin
- Kick ratchet gear not properly disengaging from kick gear
- Output shaft idle gear worn or chipped

#### **Drive chain noise:**

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

### **Abnormal Frame Noise:**

#### **Front fork noise:**

- Oil insufficient or too thin
- Spring weak or broken

#### **Rear shock absorber noise:**

- Shock absorber damaged

#### **Disc brake noise:**

- Pad installed incorrectly
- Pad surface glazed
- Disc warped
- Caliper trouble
- Cylinder damaged

#### **Other noise**

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

### **Exhaust Smoke:**

#### **Excessive white smoke:**

- Throttle cable maladjusted

#### **Brownish smoke:**

- Air cleaner clogged
- Main jet too large or fallen out
- Starter Plunger stuck open
- Float level too high

### **Handling and/or Stability Unsatisfactory:**

#### **Handlebar hard to turn:**

- Control cable routing incorrect
- Wiring routing incorrect
- Steering stem locknut too tight
- Bearing ball damaged
- Bearing race dented or worn
- Steering stem lubrication inadequate
- Steering stem bent
- Tire air pressure too low

#### **Handlebar shakes or excessivervibrates:**

- Tire worn
- Swing arm bushing or needle bearing damaged
- Rim warped, or not balanced
- Front, rear axle runout excessive
- Wheel bearing worn
- Handlebar clamp loose
- Steering stem head nut loose

#### **Handlebar pulls to one side:**

- Frame bent
- Wheel misalignment
- Swing arm bent or twisted
- Swing arm pivot shaft runout excessive
- Steering maladjusted
- Steering stem bent
- Front fork leg bent
- Right/left front fork oil level uneven

**Shock absorption unsatisfactory**

- (Too hard)
- Front fork oil excessive
- Front fork oil viscosity too high
- Front fork leg bent
- Tire air pressure too high
- Rear shock absorber maladjusted
- (Too soft)
- Front fork oil insufficient and/or leaking
- Front fork oil viscosity too low
- Front fork, rear shock absorber spring weak
- Rear shock absorber gas leaking
- Rear shock absorber maladjusted

**Brakes Don't Hold:**

- Air in the brake line
- Pad or disc worn
- Brake fluid leak
- Disc warped
- Contaminated pads
- Brake fluid deteriorated
- Primary or secondary cup damaged
- Master cylinder scratched inside
- Brake maladjustment (lever or pedal play excessive)
- Linings or drum worn
- Brakes overheated
- Water in brakes
- Brake cam worn
- Oil in drum

.....  
**General Lubrication**  
 .....

- Before lubricating each part, clean off any rusty spots with rust remover and wipe off any grease, oil, dirt, or grime.
- Lubricate the points listed below with indicated lubricant.

**NOTE**

◦ *Whenever the vehicle has been operated under wet or rainy conditions, or especially after using a high-pressure spray water, perform the general lubrication.*

**Pivots: Lubricate with Motor Oil.**

- Clutch Lever
- Front Brake Lever
- Rear Brake Pedal
- Drive Chain

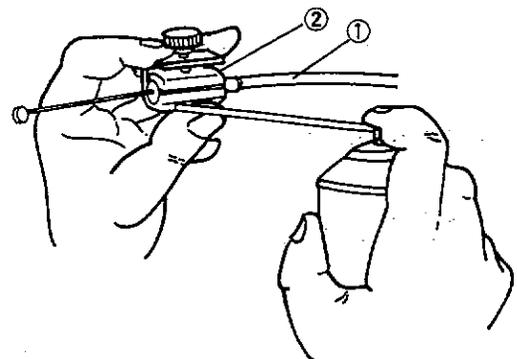
**Points: Lubricate with Grease.**

- Clutch Inner Cable Upper and Lower Ends
- Throttle Inner Cable Upper End
- Brake Inner Cable Upper End
- Swing Arm Pivot
- Tie-Rod Pivot
- Rocker Arm Pivot
- Wheel Bearing
- Steering Stem Bearing

**Cables: Lubricate with Motor Oil.**

- Clutch Cable
- Throttle Cable
- Brake Cable

**Cable Lubrication**



- 1. Cable
- 2. Pressure Cable Luber: K56019-021

# 14-6 APPENDIX

## Unit Conversion Table

### Prefixes for Units:

Prefix	Symbol	Power
mega	M	x 1,000,000
kilo	k	x 1,000
centti	c	x 0.01
milli	m	x 0.001
micro	μ	x 0.000001

### Units of Mass:

Kg	x	2.205	=	lb
g	x	0.03527	=	oz

### Units of Volume:

L	x	0.2642	=	gal(US)
L	x	0.2200	=	gal (imp)
L	x	1.057	=	qt (US)
L	x	0.8799	=	qt (imp)
L	x	2.113	=	pint (US)
L	x	1.816	=	pint (imp)
ml	x	0.03381	=	oz (US)
ml	x	0.02816	=	oz (imp)
ml	x	0.06102	=	cu in

### Units of Force:

N	x	0.1020	=	kg
N	x	0.2248	=	lb
kg	x	9.807	=	N
kg	x	2.205	=	lb

### Units of Length:

km	x	0.6214	=	mile
m	x	3.281	=	ft
mm	x	0.03937	=	in

### Units of Torque:

N-m	x	0.1020	=	kg-m
N-m	x	0.7376	=	ft-lb
N-m	x	8.851	=	in-lb
kg-m	x	9.807	=	N-m
kg-m	x	7.233	=	ft-lb
kg-m	x	86.80	=	in-lb

### Units of Pressure:

kPa	x	0.01020	=	kg/cm <sup>2</sup>
kPa	x	0.1450	=	psi
kPa	x	0.7501	=	cm Hg
kg/cm <sup>2</sup>	x	98.07	=	kPa
kg/cm <sup>2</sup>	x	14.22	=	psi
cm Hg	x	1.333	=	kPa

### Units of Speed:

km/h	x	0.6214	=	mph
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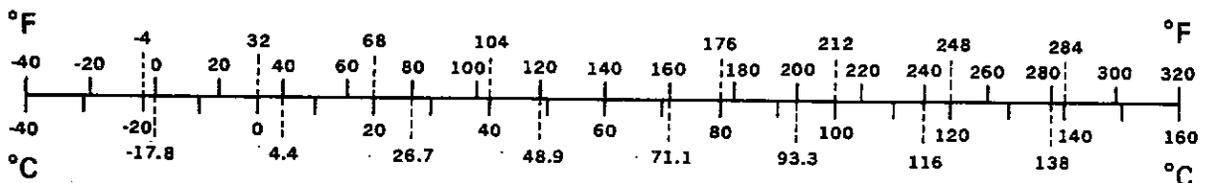
### Units of Power:

kW	x	1.360	=	PS
kW	x	1.341	=	HP
PS	x	0.7355	=	kW
PS	x	0.9863	=	HP

### Unit of Temperature:

$$\frac{9 (^{\circ}\text{C} + 40)}{5} - 40 = ^{\circ}\text{F}$$

$$\frac{5 (^{\circ}\text{F} + 40)}{9} - 40 = ^{\circ}\text{C}$$



This supplement chapter contains only the information unique to the models covered. Also read the base model chapters in front of this chapter for complete service information.

Models covered by this chapter		Base Models	
1989:	KX60-B5, KX80-L2, KX80-M2, KX80-N2, KX80-P2, KX100-A1	1988:	KX60-B4 KX80-L1 KX80-M1 KX80-N1 KX80-P1 KDX80-C5
1990:	KX60-B6, KX80-L3, KX80-M3, KX80-N3, KX80-P3, KX100-A2		
1991:	KX60-B7		
1992:	KX60-B8		
1993:	KX60-B9		
1994:	KX60-B10		
1995:	KX60-B11		
1996:	KX60-B12		
1997:	KX60-B13		

Maintenance works for the KX60-B5, through B13 are the same as for the KX 60-B4.

Maintenance works for the KX100-A1, A2 are the same as for the KX80-N1 except for this chapter.

Maintenance works for the KX80-L2, M2, N2, P2, L3, M3, N3, P3 are the same as for the KX80-L1, M1, N1, P1 except for this chapter.

## Supplement for 1989 ~ 1997 Models

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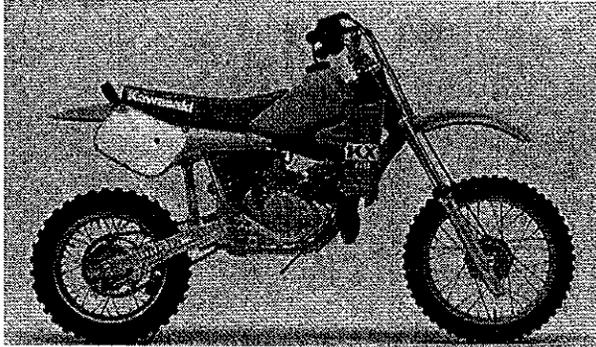
## General Information

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### Model Identification

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**KX60-B5**



**KX60-B6**



**KX60-B7**



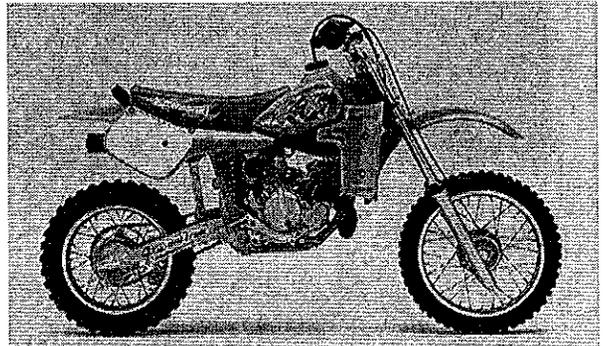
**KX60-B8**



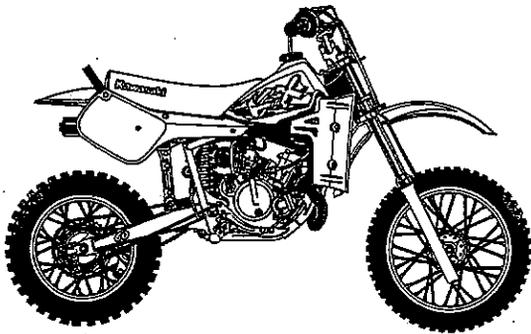
**KX60-B9**



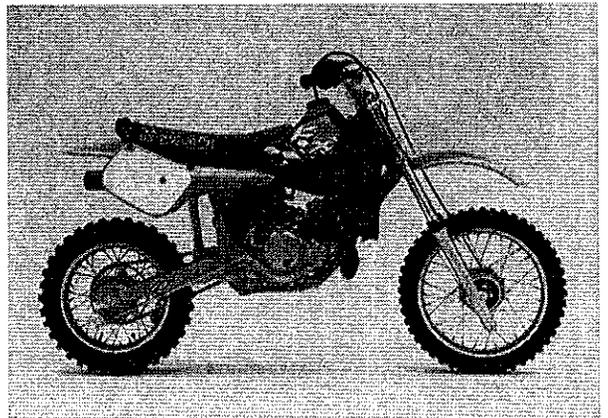
**KX60-B10**



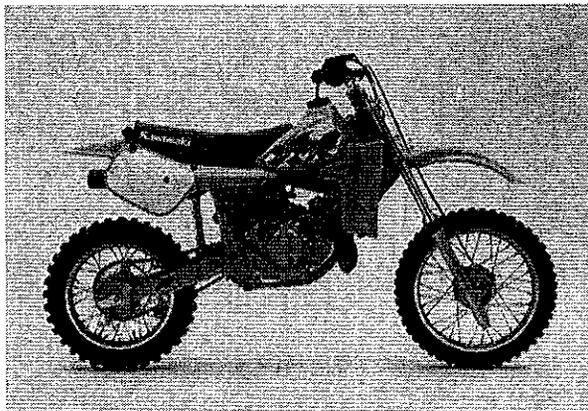
**KX60-B11**



**KX60-B12**

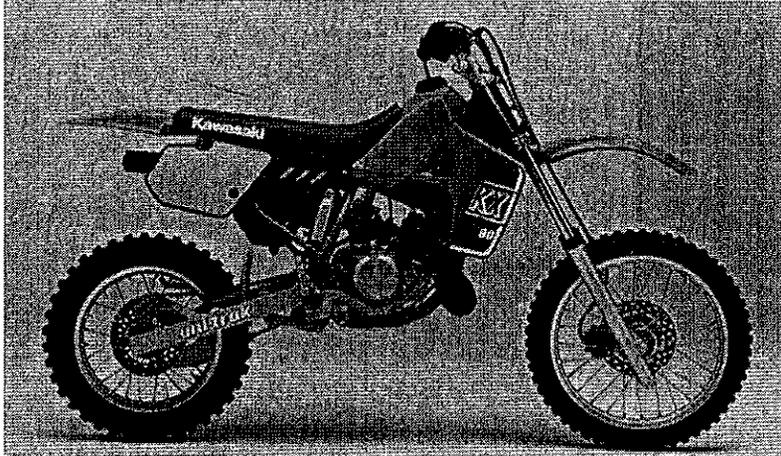


**KX60-B13**

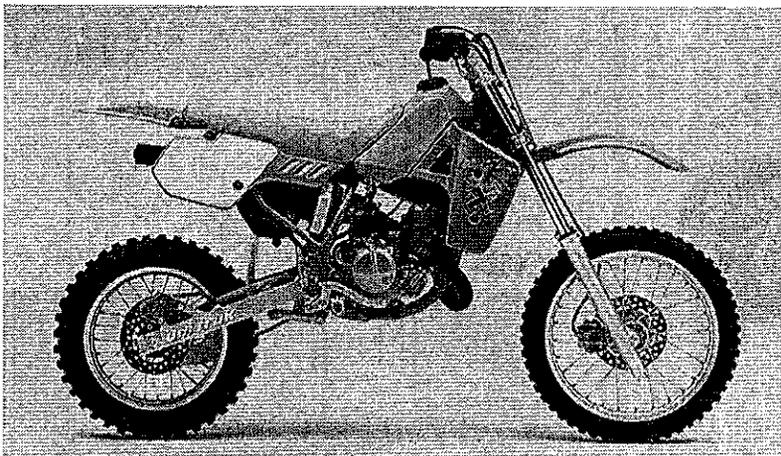


15-4 SUPPLEMENT FOR 1989 ~ 1997 MODELS

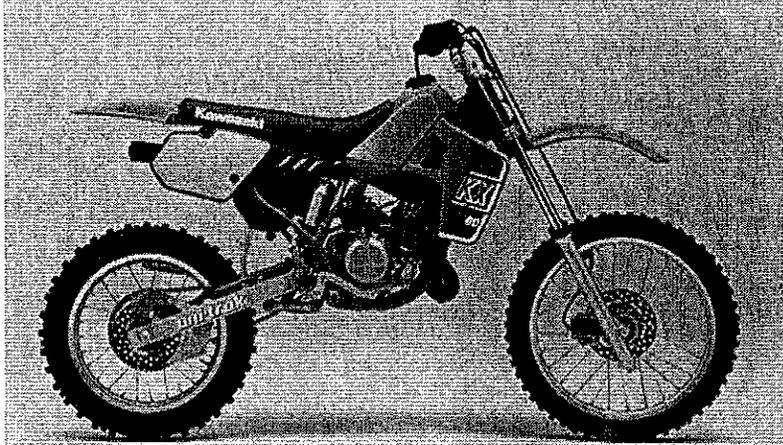
**KX80-L2/M2**



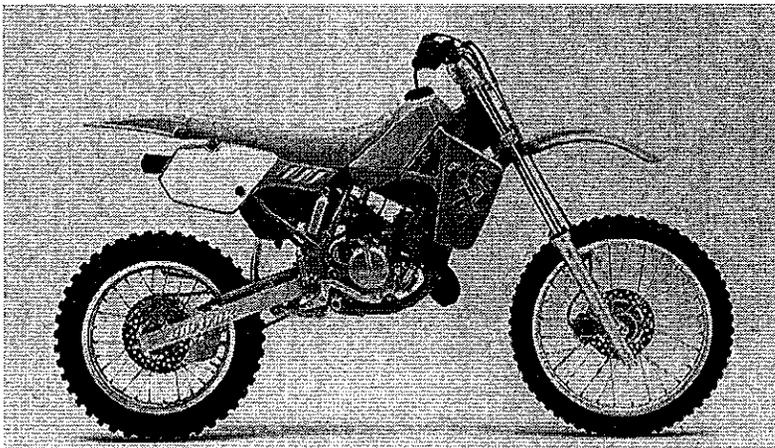
**KX80-L3/M3**



**KX80-N2/P2**

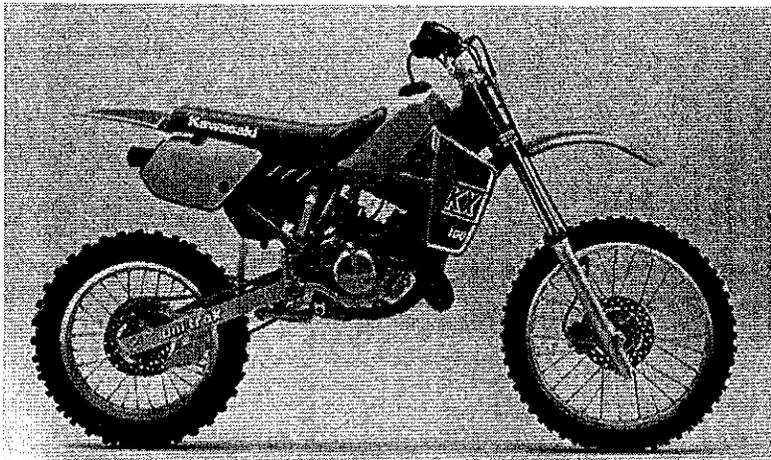


**KX80-N3/P3**

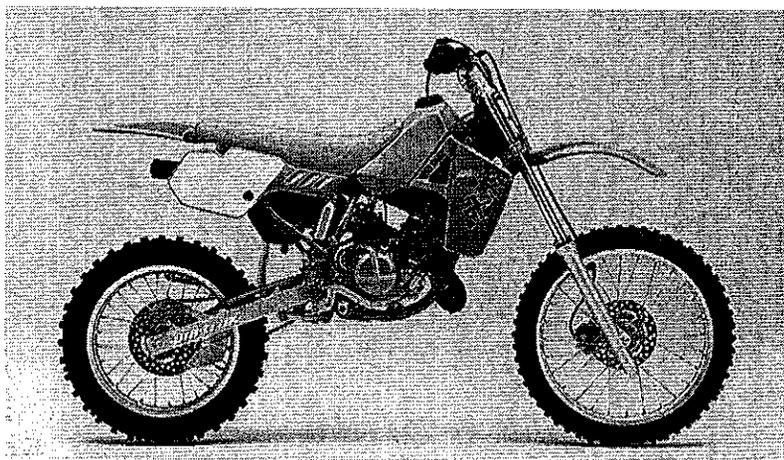


**15-6 SUPPLEMENT FOR 1989 ~ 1997 MODELS**

**KX100-A1**



**KX100-A2**





# 15-8 SUPPLEMENT FOR 1989 ~ 1997 MODELS

## General Specifications-1

Items	KX60-B5, B6, B7, B8, B9, B10, B11, B12, B13	
<b>Dimensions:</b>		
Overall length	1560 mm	
Overall width	705 mm	
Overall height	915 mm	
Wheelbase	1080 mm	
Road clearance	250 mm	
Seat height	710 mm	
Dry weight	50.5 kg	
Curb weight:	Front	26.0 kg
	Rear	27.5 kg
Fuel tank capacity	3.5 L	
<b>Engine:</b>		
Type	2-stroke, single cylinder, piston reed valve	
Cooling system	Liquid-cooled	
Bore and stroke	43.0 × 41.6 mm	
Displacement	60 mL	
Compression ratio	8.4 : 1	
Maximum horsepower	11.0 kW (15 PS) @ 12 000 r/min (rpm)	
Maximum torque	9.0 N-m (0.92 kg-m, 6.7 ft-lb) @ 10 500 r/min (rpm)	
Carburetion system	Carburetor, Mikuni VM24SS	
Starting system	Primary kick	
Ignition system	CDI	
Ignition timing	18.5° BTDC @ 6 000 r/min (rpm)	
Spark plug	NGK B9EG (AS)(C)(E) NGK BR9EG	
Port timing:	Inlet	Open Close
	Scavenging	Open Close
	Exhaust	Open Close
Engine Lubrication system	Petrol mix (32 : 1) using 2-stroke racing oil	
<b>Drive Train:</b>		
Primary reduction system:	Type	Gear
	Reduction ratio	3.500 (77/22)
Clutch type	Wet, multi disc	
Transmission:	Type	6-speed, constant mesh, return shift
	Gear ratios:	1st 2.846 (37/13)
		2nd 2.125 (34/16)
		3rd 1.722 (31/18)
		4th 1.428 (30/21)
		5th 1.217 (28/23)
		6th 1.083 (26/24)
Final drive system:	Type	Chain drive
	Reduction ratio	3.384 (44/13)
Overall drive ratio	12.833 @ Top gear	
Transmission oil:	Grade	SE class
	Viscosity	SAE 10W30 or 10W40
	Capacity	0.6 L

(Continued on next page.)

**SUPPLEMENT FOR 1989 ~ 1997 MODELS 15-9**

Items	KX60-B5, B6, B7, B8, B9, B10, B11, B12, B13
<b>Frame:</b>	
Type	Tubular, semi-double cradle
Steering angle	45° to either side
Caster (rake angle)	28°
Trail	65mm
Front tire:            Make/Type	DUNLOP K195, Tube type
Size	60/100 - 14
Rear tire:            Make/Type	DUNLOP K195, Tube type
Size	80/100 - 12
Front suspension: Type	Telescopic fork (Air fork)
Wheel travel	200 mm
Rear suspension: Type	Swingarm (Uni-trak)
Wheel travel	200 mm
Brake type:            Front and Rear	Internal expansion, leading-trailing
Brake drum inside diameter x length	90 x 20 mm (3.5 x 0.8 in)

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

(AS) : Australian Model

(C) : Canadian Model

(E) : European Model

# 15-10 SUPPLEMENT FOR 1989 ~ 1997 MODELS

## General Specifications-2

Items	KX80-L2/M2/N2/P2, KX100-A1		
<b>Dimensions:</b>			
Overall length	1 810 mm, (N)(P)(A) 1 905 mm		
Overall width	745 mm		
Overall height	1 050 mm, (N)(P)(A) 1 080 mm		
Wheelbase	1 250 mm, (N)(P)(A) 1 290 mm		
Road clearance	335 mm, (N)(P)(A) 365 mm		
Seat height	840 mm, (N)(P)(A) 870 mm		
Dry weight	61.0 kg, (N)(P)(A) 64.0 kg		
Curb weight:	Front	31.5 kg, (N)(P)(A) 32.5 kg	
	Rear	33.5 kg, (N)(P)(A) 35.5 kg	
Fuel tank capacity	4.5 L		
<b>Engine:</b>			
Type	2-stroke, single cylinder, piston reed valve		
Cooling system	Liquid-cooled		
Bore and stroke	48.0 × 45.8 mm, (M)(P) 47.0 × 45.8 mm, (A) 52.5 × 45.8 mm		
Displacement	82 mL, (M)(P) 79 mL, (A) 99 mL		
Compression ratio	9.0 : 1, (M)(P) 8.7 : 1, (A) 8.9 : 1		
Maximum horsepower	18.0 kW (24.5 PS), (A) 18.8 kW (25.5 PS) @ 12 000 r/min (rpm)		
Maximum torque	14.5 N-m (1.48 kg-m, 10.7 ft-lb) @ 11 000 r/min (rpm),		
Carburetion system	Carburetor, Keihin PE28		
Starting system	Primary kick		
Ignition system	CDI		
Ignition timing	12° BTDC @ 12 000 r/min (rpm)		
Spark plug	NGK B9EG		
Port timing:	Inlet	Open	Full open
		Close	-
	Scavenging	Open	62.5° BBDC
	Close	62.5° ABDC	
Exhaust	Open	93.5° BBDC	
	Close	93.5° ABDC	
Lubrication system	Petrol mix (32 : 1)		
<b>Drive Train:</b>			
Primary reduction system:			
	Type	Gear	
	Reduction ratio	3.400 (68/20)	
Clutch type		Wet, multi disc	
Transmission:		6-speed, constant mesh, return shift	
	Type		
Gear ratio:	1st	2.538 (33/13)	
	2nd	1.875 (30/16)	
	3rd	1.500 (27/18)	

(continued on next page.)

**SUPPLEMENT FOR 1989 ~ 1997 MODELS 15-11**

Items		KX80-L2/M2/N2/P2/, KX100-A1
	4th	1.250 (25/20)
	5th	1.090 (24/22)
	6th	0.956 (22/23)
Final drive system:	Type	Chain drive
	Reduction ratio	3.769 (49/13), (N)(P) 4.153 (54/13), (A) 4.000 (52/13)
Overall drive ratio		12.258, (N)(P) 13.509, (A) 13.008 @ Top gear
Transmission oil:	Grade	SE class
	Viscosity	SAE 10W-30 or 10W-40
	Capacity	0.7 L
<b>Frame:</b>		
	Type	Tubular, semi-double cradle
	Steering angle	45° to either side
	Caster (rake angle)	28°
	Trail	95 mm, (N)(P)(A) 109 mm
Front tire:	Make/Type	DUNLOP K490, (E)(A) K990, Tube type
	Size	70/100-17 40 M, (N)(P)(A) 70/100-19 42 M
Rear tire:	Make/Type	DUNLOP K595, (N)(P) K490 (E)(A) K990, Tube type
	Size	90/100-14 49 M, (N)(P)(A) 90/100-16 52 M
Front suspension:	Type	Telescopic fork (Air fork)
	Wheel travel	275 mm, (N)(P)(A) 265 mm
Rear suspension:	Type	Swingarm (Uni-trak)
	Wheel travel	275 mm, (N)(P)(A) 250 mm
Brake type:	Front and Rear	Single disc
Effective disc diameter:	Front	170 mm
	Rear	150 mm

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

- (A): KX100-A
- (M): KX80-M
- (N): KX80-N
- (P): KX80-P
- (E): European Model

# 15-12 SUPPLEMENT FOR 1989 ~ 1997 MODELS

## General Specifications-3

Items	KX80-L3/M3/P3/, KX100-A2
<b>Dimensions:</b>	
Overall length	1810 mm, (N)(P)(A) 1 905 mm
Overall width	745 mm
Overall height	1 050 mm, (N)(P)(A) 1 080 mm
Wheelbase	1 250 mm, (N)(P)(A) 1 290 mm
Road clearance	335 mm, (N)(P)(A) 365 mm
Seat height	840 mm, (N)(P)(A) 870 mm
Dry weight	61.0 kg, (N)(P)(A) 64.0 kg
Curb weight:	
Front	31.5 kg, (N)(P)(A) 32.5 kg
Rear	33.5 kg, (N)(P)(A) 35.5 kg
Fuel tank capacity	4.5 L
<b>Engine:</b>	
Type	2-stroke, single cylinder, piston reed valve
Cooling system	Liquid-cooled
Bore and stroke	48.0 x 45.8 mm, (M)(P) 47.0 x 45.8 mm, (A) 52.5 x 45.8 mm
Displacement	82 mL, (M)(P) 79 mL, (A) 99 mL
Compression ratio	9.0 : 1, (M)(P) 8.7 : 1, (A) 8.9 : 1
Maximum horsepower	(M)(P) 19.1 kW (26 PS), (L)(N) 19.3 kW (26.2 PS), (A) 20.0 kW (27.2 PS) @ 12 000 r/min (rpm)
Maximum torque	(M)(P) 15.4 N-m (1.57 kg-m, 11.4 ft-lb) @ 11 000 r/min (rpm), (L)(N) 15.7 N-m (1.6 kg-m, 11.6 ft-lb) @ 11 500 r/min (rpm), (A) 17.6 N-m (1.8 kg-m, 13.0 ft-lb) @ 10 000 r/min (rpm)
Carburetion system	Carburetor, Keihin PE26
Starting system	Primary kick
Ignition system	CDI
Ignition timing	11° BTDC @ 12 000 r/min (rpm)
Spark plug	NGK B9EG
Port timing:	
Inlet	Open
	Close
Scavenging	Open
	Close
Exhaust	Open
	Close
Engine Lubrication system	Petrol mix (32:1) using 2-stroke racing oil

(Continued on next page.)

**SUPPLEMENT FOR 1989 ~ 1997 MODELS 15-13**

Items	KX80-L3/M3/P3/, KX100-A2
<b>Drive Train:</b>	
Primary reduction system:	
Type	Gear
Reduction ratio	3.400 (68/20)
Clutch type	Wet, multi disc
Transmission:	6-speed, constant mesh, return shift
Type	
Gear ratios:	1st 2.538 (33/13)
	2nd 1.875 (30/16)
	3rd 1.500 (27/18)
	4th 1.250 (25/20)
	5th 1.090 (24/22)
	6th 0.956 (22/23)
Final drive system:	Type Chain drive
Reduction ratio	3.769 (49/13), (N)(P) 4.153 (54/13), (A) 4.000 (52/13)
Overall drive ratio	12.258, (N)(P) 13.509, (A) 13.008 @ Top gear
Transmission oil:	Grade SE class
Viscosity	SAE 10W-30 or 10W-40
Capacity	0.7 L
<b>Frame:</b>	
Type	Tubular, semi-double cradle
Steering angle	45° to either side
Caster (rake angle)	28°
Trail	95 mm, (N)(P)(A) 109 mm
Front tire:	Make/Type DUNLOP K490, (E)(P)(A) K990, Tube type
	Size 70/100-17 40 M, (N)(P)(A) 70/100-19 42 M
Rear tire:	Make/Type DUNLOP K695, (E)(P)(A) K990, Tube type
	Size 90/100-14 49 M, (N)(P)(A) 90/100-16 52 M
Front suspension:	Type Telescopic fork (Air fork)
	Wheel travel 275 mm
Rear suspension:	Type Swingarm (Uni-trak)
	Wheel travel 275 mm, (N)(P)(A) 250 mm
Brake type:	Front and Rear Single disc
Effective disc diameter:	Front 170 mm
	Rear 150 mm

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

- (A): KX100-A
- (L): KX80-L
- (M): KX80-M
- (N): KX80-N
- (P): KX80-P
- (E): European Model

# 15-14 SUPPLEMENT FOR 1989 ~ 1997 MODELS

## 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 overtightened may become damaged, strip and internal threads, 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 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	
<b>Fuel System</b>				
Left Rear Frame Pipe Bolts (KX80, KX100)	39	4.0	29	
<b>Cooling System:</b>				
Water Pump Impeller Bolt	8.5	0.85	73 in-lb	
Coolant Drain Plug:				
Pump Cover (KX60)	25	2.5	18	
(KX80, KX100)	7.8	0.80	69 in-lb	
Cylinder (KX80, KX100)	8.8	0.90	78 in-lb	
<b>Engine Top End:</b>				
Cylinder Head Bolts or Nuts	25	2.5	18	
Spark Plug	27	2.8	20	
Cylinder Nuts (KX80, KX100)	25	2.5	18	
Cylinder Drain Plug	8.8	0.90	78 in-lb	
<b>Engine Right Side:</b>				
Water Pump Impeller Bolt	8.5	0.85	73 in-lb	
Clutch Hub Bolt (KX60)	64	6.5	47	
Clutch Hub Nut (KX80, KX100)	78	8.0	58	
Clutch Spring Bolts	9.5	0.95	82 in-lb	
Return Spring Pin (KX80, KX100)	20	2.0	14.5	L
Primary Gear Nut (KX60)	49	5.0	36	
Kick Guide Mounting Screws	---	---	---	L
<b>Engine Removal/Installation:</b>				
Engine Mounting Nuts (KX60)	25	2.5	18.0	
(KX80, KX100)	34	3.5	25	
Swingarm Pivot Shaft Nut	69	7.0	51	
<b>Engine Bottom End/Transmission:</b>				
Transmission Oil Drain Plug	20	2.0	14.5	
Primary Gear Nut (KX60)	49	5.0	36	
Flywheel Nut	29	3.0	22	

**SUPPLEMENT FOR 1989 ~ 1997 MODELS 15-15**

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
<b>Wheels/Tires:</b>				
Front Axle Nut (KX60)	49	5.0	36	
(KX80, KX100)	78	8.0	58	
Rear Caliper Mounting Bolts				
(KX80, 100)	25	2.5	18	
Rear Axle Nut: (KX60, KX80, KX100)	78	8.0	58	
Spoke Nipples (KX60)	1.2 ~ 2.0	0.12 ~ 0.20	10 ~ 17 in-lb	
(KX80, KX100)	29	3.0	22	
<b>Final Drive:</b>				
Rear Axle Nut: (KX60, 80, 100)	78	8.0	58	
Rear Sprocket Nuts: (KX60)	21	2.1	15	
(KX80, KX100)	29	3.0	22	
<b>Brakes:</b>				
Caliper Mounting Bolts (Front, Rear)	25	2.5	18	
Brake Hose Banjo Bolts	25	2.5	18	
Rear Master Cylinder Mounting Bolts	25	2.5	18	
Brake Disc Screws (KX80, KX100)	8.8	0.90	78 in-lb	
Caliper Bleed Valves (Front, Rear)	7.8	0.80	69 in-lb	
Brake Pedal Mounting Bolt	8.8	0.90	78 in-lb	L
<b>Suspension:</b>				
Caliper Mounting Bolts (KX80, KX100)	25	2.5	18	
Front Fork Top Plugs	23	2.3	16.5	
Front Fork Clamp Nuts				
(KX60) Upper:	20	2.0	14.5	
Lower:	25	2.5	18	
(KX80, 100) Upper:	22	2.2	16.0	
Lower:	20	2.0	14.5	
Front Fork Cylinder (Allen) Bolts				
(KX60)	20	2.0	14.5	L
(KX80, KX100)	29	3.0	22	L
Front Axle Nut: (KX60)	49	5.0	36	
(KX80, KX100)	78	8.0	58	
Uni-trak Arm Mounting Nut: (KX60)	69	7.0	51	
Uni-trak Link Nuts: (KX60)	49	5.0	36	
Rear Shock Absorber Mounting Nuts				
Upper and Lower: (KX60)	49	5.0	36	
(KX80, KX100)	39	4.0	29	

## 15-16 SUPPLEMENT FOR 1989 ~ 1997 MODELS

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Tie-rod Front Mounting Nut	59	6.0	43	
Tie-rod Rear Mounting Nut	59	6.0	43	
Rocker Arm Pivot Shaft Nut	59	6.0	43	
Swingarm Pivot Shaft Nut	69	7.0	51	
<b>Steering:</b>				
Steering Stem Head Nut				
(KX60)	34	3.5	25	
(KX80, KX100)	44	4.5	33	
Steering Stem Nut				
(KX60)	3.9	0.40	35 in-lb	
(KX80, KX100)	3.9	0.40	35 in-lb	
Handlebar Clamp Bolts	21	2.1	15.0	
<b>Frame:</b>				
Left Rear Frame Pipe Bolts				
(KX80, KX100)	39	4.0	29	
Rear Fender Flap Bolts	5.9	0.60	52 in-lb	
<b>Electrical System:</b>				
Flywheel Nut	29	3.0	22	
Spark Plug	27	2.8	20	

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

### General Fasteners

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

# Fuel System

## Specifications

### KX80-L2, M2, N2, P2, KX100-A1

Item	Standard
<b>Carburetor Specifications:</b>	
Make/type	KEIHIN PE28
Main jet	132 (KX80), 135 (KX100)
Throttle valve cutaway	6.0
Jet needle	F1342H-4
Jet needle clip position	4th groove from the top
Slow jet	55
Air screw	1½ (turns out)
Service fuel level (below the bottom edge of the carburetor body)	1.0±1 mm
Float height	19.0±2 mm

### KX80-L3, M3, N3, P3, KX100-A3

Item	Standard
<b>Carburetor Specifications:</b>	
Make/type	KEIHIN PE26
Main jet	122
Throttle valve cutaway	3.0
Jet needle	N68U-4
Jet needle clip position	4th groove from the top
Slow jet	55
Air screw	1½ (turns out)
Service fuel level (below the bottom edge of the carburetor body)	3.0±1 mm
Float height	19.0±2 mm

## Carburetor

### Idle Speed Adjustment

- First turn in the air screw until it seats lightly, and back it out 1½ turns.

### Carburetor Assembly

- When installing the air screw, turn in the air screw fully but not tightly, and then back it out 1½ turns.

## Air Cleaner

### Air Cleaner Housing Installation

- Tighten the left rear frame pipe bolts to 39 N-m (4.0 kg-m, 29 ft-lb) of torque.

## Cooling System

### Specifications

Item	Standard
<b>Coolant Provided when Shipping:</b>	
Total amount                      KX80, KX100	0.67 L

## Engine Top End

### Specifications

#### KX100:

Item	Standard	Service Limit
<b>Cylinder Head:</b>		
Cylinder compression	(usable range) 825 ~ 1 280 kPa (8.4 ~ 13.0 kg/cm <sup>2</sup> , 119 ~ 185 psi)	---
Cylinder head warp	---	0.03 mm
<b>Cylinder Piston:</b>		
Cylinder inside diameter	52.500 ~ 52.515 mm	52.62 mm
Piston diameter (5mm up from bottom)	52.441 ~ 52.456 mm	52.29 mm
Piston/cylinder clearance	0.054 ~ 0.064 mm	---
Piston ring/groove clearance		
Top	0.04 ~ 0.08 mm	0.18 mm
Second	0.02 ~ 0.06 mm	0.16 mm
Piston ring groove width		
Top	1.03 ~ 1.05 mm	1.13 mm
Second	1.01 ~ 1.03 mm	1.10 mm
Piston ring thickness	0.97 ~ 0.99 mm	0.9 mm
Piston ring end gap	0.3 ~ 0.5 mm	0.8 mm
Piston pin diameter	13.995 ~ 14.000 mm	13.96 mm
Piston pin hole diameter	14.000 ~ 14.006 mm	14.07 mm
Small end inside diameter	18.002 ~ 18.013 mm	18.05 mm

## Engine Right Side

### Clutch

#### NOTE

- There must be at most two shims placed on the pusher. If more than two shims are needed for adjustment, check the clutch plates.

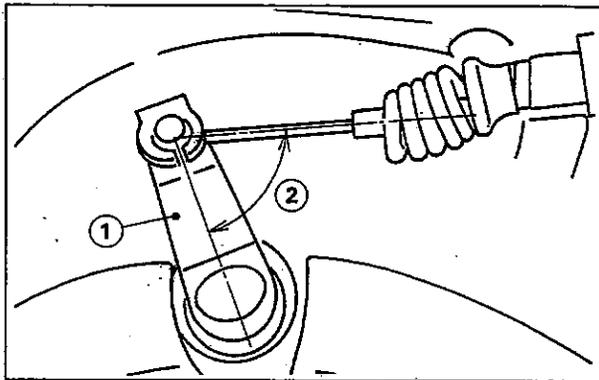
#### Clutch Release Lever Angle Adjustment (KX60-B4 ~)

If the clutch slips or the action at the lever feels heavy despite proper clutch lever free play adjustment, inspect and adjust the clutch release lever angle.

- Loosen the nuts, and slide the adjuster to give the cable plenty of play.
- Turn the clutch release lever until it becomes hard to turn. This is the point where the clutch is just starting to release. At this time, check that the clutch release lever to clutch cable angle is the specified amount.

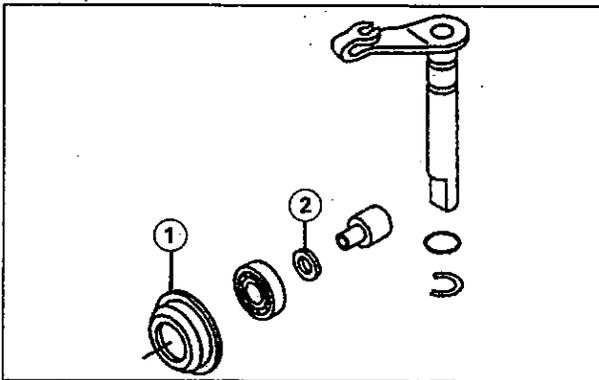
#### Clutch Release Lever Angle

Standard: 80° ~ 90°



1. Clutch Release Lever 2. 80° ~ 90°

- ★ If it is not, adjust the clutch lever angle as follows.
- Check if the clutch release angle is more than 90°, or less than 80°.
- Remove the right engine cover (see Right Engine Cover Removal).
- ★ If the release lever angle is more than 90°, add the one shim on the spring plate.
- Install the shim on the outside of the pusher.



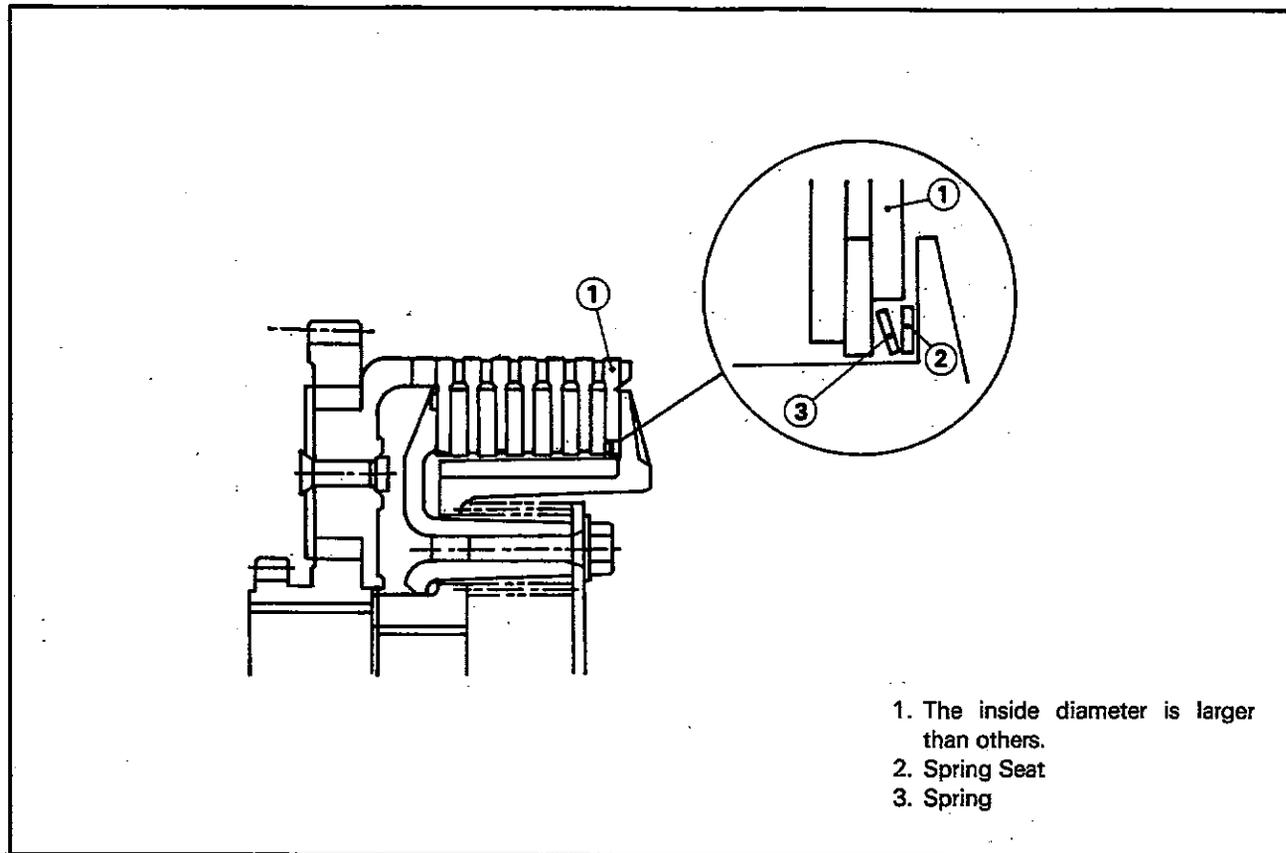
1. Spring Plate Pusher 2. Shim

- ★ If the lever angle is less than 80°, take off the one shim.

## 15-20 SUPPLEMENT FOR 1989 ~ 1997 MODELS

### Clutch Installation (KX80, KX100)

- The inside diameter of the outside friction plate is larger than the others. Install it with the spring and spring seat as shown. Spring concave side must be faced inside.

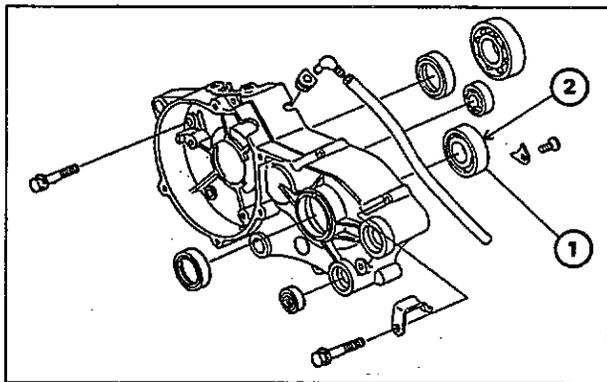


## Engine Bottom End/Transmission

### Crankcase Splitting

#### Crankcase Assembly

- Install the bearing for the output shaft into the left crankcase half so that stepped side faces right.

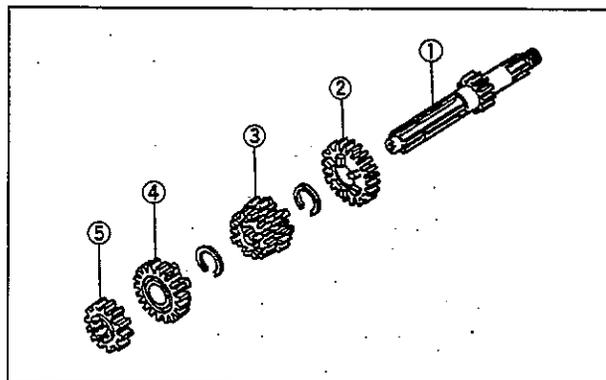


### Transmission

#### Transmission Shaft Assembly

##### Drive Shaft Gears (KX80)

1. 1st gear (13T; part of drive shaft)
2. 6th gear (23T; Flat side faces right)
3. 3rd/4th gear (18T/20T; larger gear faces right)
4. 5th gear (22T; flat side faces left)
5. 2nd gear (16T; chamfered side faces right)



## Final Drive

### Specifications

#### KX80-L2/M2/N2/P2, L3/M3/N3/P3

Item	Standard	Service Limit
<b>Drive Chain:</b> Type	D.I.D 420DS	---
<b>Sprockets:</b> Rear sprocket diameter: KX80-L,M KX80-N,P	190.90 mm/49T 210 ~ 211.2 mm/54T	190.4 mm 209.7 mm

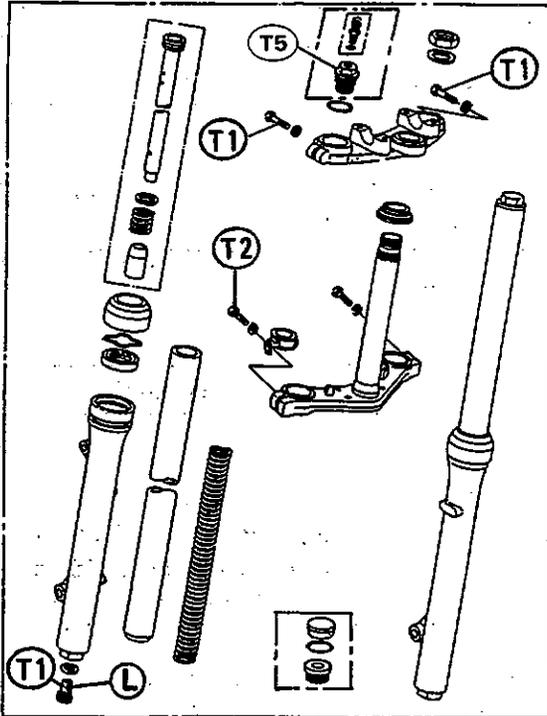
#### KX100-A1, A2

Item	Standard	Service Limit
<b>Drive Chain:</b> Type Length: Chain slack:  20-link length	D.I.D 420 DS 126 Links 40 ~ 50 mm  245.0 mm	--- --- Too tight: Less than 40mm Too loose: More than 55mm 259 mm
<b>Sprockets:</b> Engine sprocket diameter Rear sprocket diameter Rear sprocket warp	44.71 ~ 44.91 mm/13T 202.62 ~ 203.12 mm/52T Under 0.4 mm	44.0 mm 202.3 mm 0.5 mm

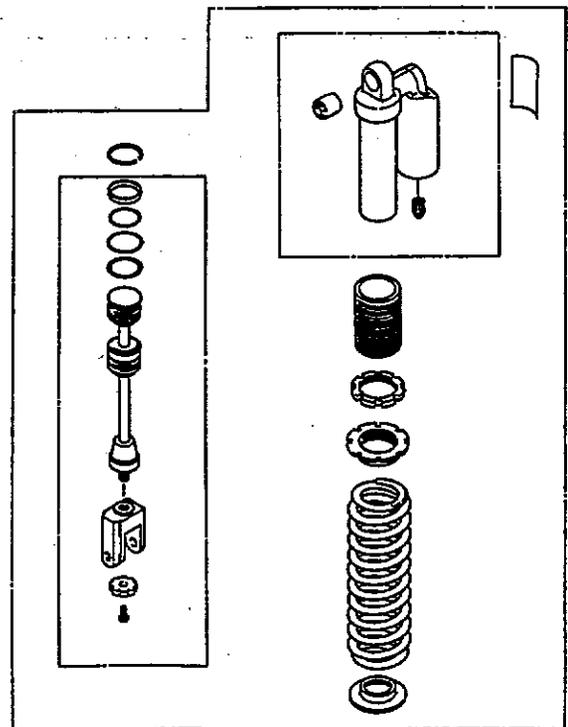
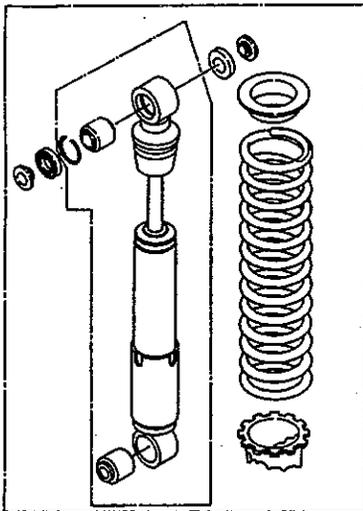
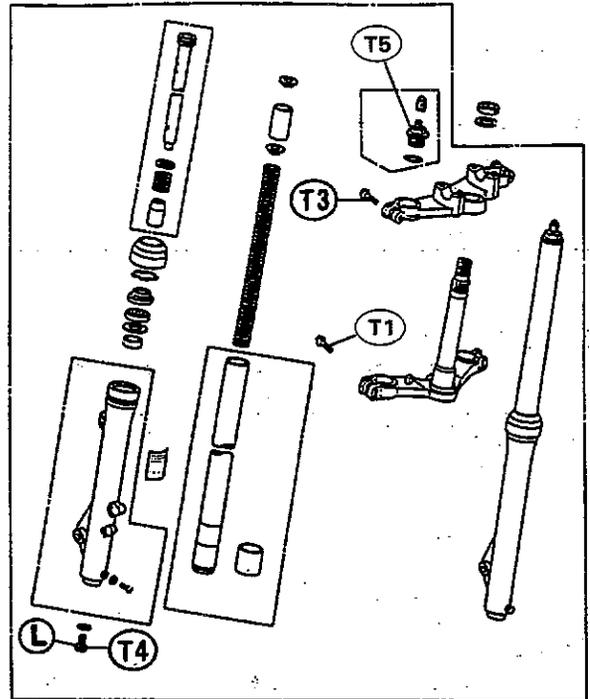
# Suspension

## Exploded View

KX60:



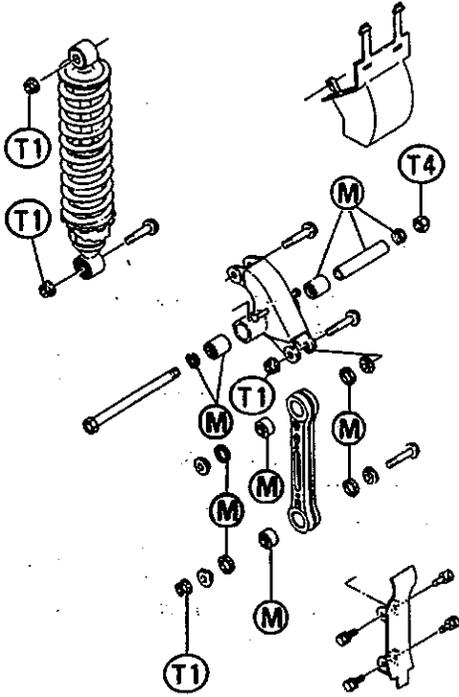
KX80, KX100:



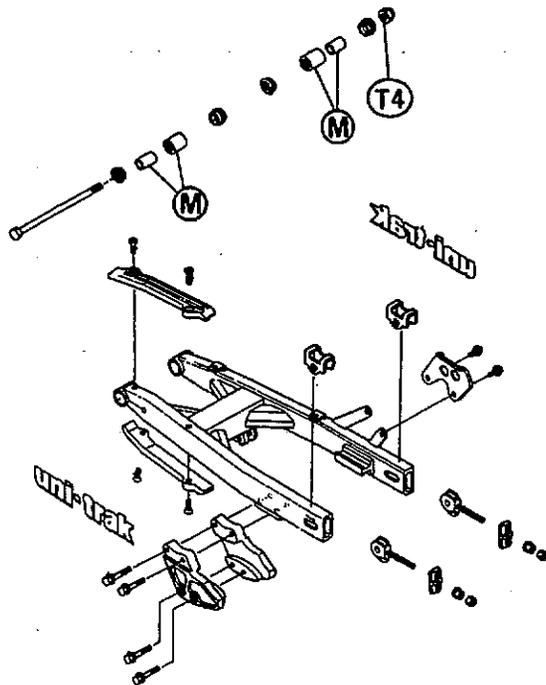
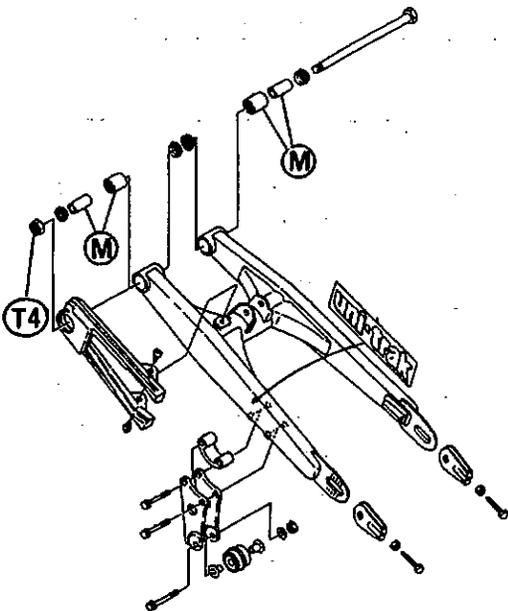
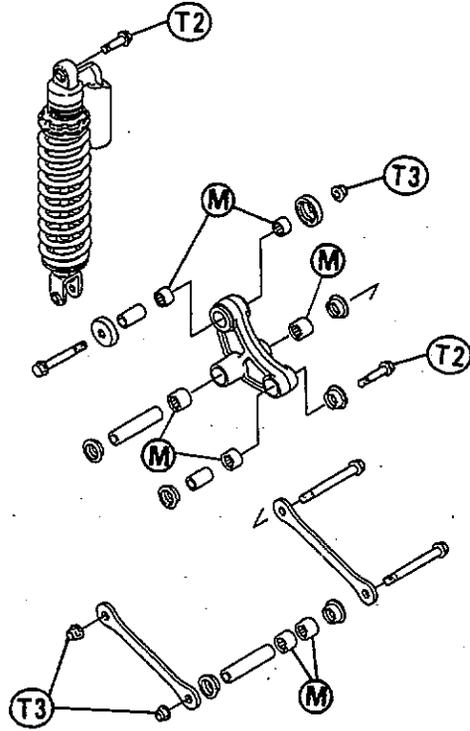
L : Apply a non-permanent locking agent to the threads.  
 T1 : 20 N-m (2.0 kg-m, 14.5 ft-lb)  
 T2 : 25 N-m (2.5 kg-m, 18 ft-lb)

T3 : 22 N-m (2.2 kg-m, 16.0 ft-lb)  
 T4 : 29 N-m (3.0 kg-m, 22 ft-lb)  
 T5 : 23 N-m (2.3 kg-m, 16.5 ft-lb)

**KX60:**



**KX80, KX100:**



**M** : Apply plenty of molybdenum disulfide grease.  
**T1** : 49 N-m (5.0 kg-m, 36 ft-lb)  
**T2** : 39 N-m (4.0 kg-m, 29 ft-lb)

**T3** : 59 N-m (6.0 kg-m, 43 ft-lb)  
**T4** : 69 N-m (7.0 kg-m, 51 ft-lb)

# 15-24 SUPPLEMENT FOR 1989 ~ 1997 MODELS

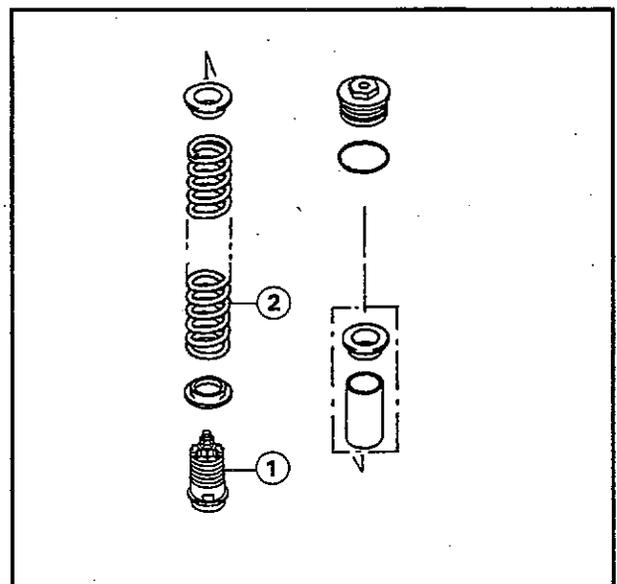
## Specifications

Item	Standard	Service Limit
<b>Front Fork:</b>		
Oil viscosity: KX80-L2, M2, N2, P2, KX100-A1	KAYABA G-10 or SAE 10W-20	---
KX80-L3, M3, N3, P3, KX100-A2	KAYABA G-5 or SAE 10W-20	---
Oil capacity: KX80-L2, M2	333 ± 3 mL	---
KX80-N2, P2, KX100-A1	353 ± 3 mL	---
KX80-L3, M3	330 ± 3 mL	---
KX80-N3, P3, KX100-A2	340 ± 3 mL	---
Oil level (fully compressed, spring removed): KX80-L2, M2, N3, P3 KX100-A2	105 ± 5 mm	(adjustable range) 90 ~ 135 mm
KX80-L3, M3, N2, P2, KX100-A1	100 ± 5 mm	90 ~ 130 mm
Standard fork tube height: KX100	0 mm	see p. 11-8
<b>Rear Shock Absorber</b>		
Fork spring free length: KX80-L2, M2, N2, P2, KX100-A1	497.5 mm	(adjustable range) 1-4
KX80-L3, M3, N3, P3, KX100-A2	489.5 mm	
Compression and rebound dampers:	2	
Spring preload: (adjusting nut position from the center of the upper mounting hole)		
KX80-L2, M2, N2, P2, KX100-A1	88 mm	71 ~ 96 mm
KX80-L3, M3	81.5 mm	71 ~ 96 mm
KX80-N3, P3, KX100-A2	85 mm	71 ~ 96 mm

## Front Fork

### Front Fork Assembly ('90 KX80, KX100)

- Install the TCV valve as shown.



1. TCV Valve

2. Fork Spring

## Rear Suspension (KX80, KX100)

### Rear Shock Absorber Installation

**Tightening Torque:**

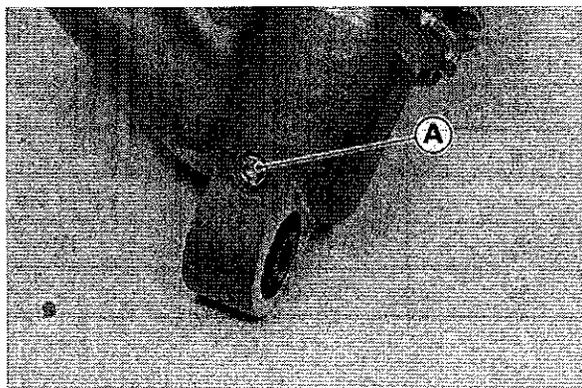
39 N-m (4.0 kg-m, 29 ft-lb)

**Uni-trak Tie-rod Nut:**

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

### Rear Shock Absorber Assembly

- Perform the following before nitrogen gas injection.
- Hold the lower end of the push rod assembly with a vise.
- Pump the rear shock up and down several times, and then leave it in the fully extended position for about three minutes.
- Remove the air bleeder bolt from the upper part of the rear shock body.



A. Air Bleeder Bolt

★ If oil comes out of the air bleeder screw hole, let it overflow until it stops.

★ If oil does not come out of the air bleeder screw hole, add the specified oil into the air bleeder screw hole until it overflows (that is, until all the remaining air is forced out).

- Install the air bleeder screw securely.
- Fully extend the push rod assembly.

### Swingarm Installation

**Tightening Torque:**

**Tie-rod Rear Mounting Nut:**

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

### Tie-Rod Installation

**Tightening Torque:**

**Tie-rod Nut (Front and Rear):** 59 N-m (6.0 kg-m, 43 ft-lb)

### Rocker Arm Installation

**Tightening Torque:**

**Tie-rod Nut (Front and Rear):**

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

## Electrical System

### Specifications

Item	Standard
<b>Ignition Sytem:</b>	
Spark plug: KX60, KX80, KX100	NGK B9EG (AS)(C)(E) NGK BR9EG
Ignition Coil ('91 ~ '93, '95 ~ '97 KX60)	
Primary winding resistance	0.25 ~ 0.37 Ω
Secondary winding resistance	2.5 ~ 3.7 kΩ
Ignition Coil ('94 KX60)	
Primary winding resistance	0.34 ~ 0.50 Ω
Secondary winding resistance	5.1 ~ 7.7 kΩ
Ignition Coil ('90 KX80, KX100)	
Primary winding resistance	0.34 ~ 0.50 Ω
Secondary winding resistance	5.1 ~ 7.7 kΩ

# 15-26 SUPPLEMENT FOR 1989 ~ 1997 MODELS

## Ignition System

### CDI Unit Inspection

● Refer to the base model for KX60-B5, B6's CDI unit internal resistance.

CDI Unit Internal Resistance for KX60-B7, B8, B9, B11, B12 (P/No.21119-1312)

(×1kΩ)

Tester (-) Lead Connection	Tester (+) Lead Connection			
	BK/R	W/R	BK/Y	O
BK/R	-	∞	∞	∞
W/R	10 ~ 30	-	4 ~ 10	∞
BK/Y	2 ~ 5	∞	-	∞
O	∞	∞	∞	-

∞ : Indicates no reading (infinite resistance)

CDI Unit Internal Resistance for KX60-B10 (P/No.21119-1400)

(×1kΩ)

Tester (-) Lead Connection	Tester (+) Lead Connection			
	BK/R	O	BK/W	BK/Y
BK/R	-	∞	∞	∞
O	5.5 ~ 16	-	1.5 ~ 6.5	1.5 ~ 6.5
BK/W	1.5 ~ 6.5	∞	-	O
BK/Y	1.5 ~ 6.5	∞	O	-

∞ : Indicates no reading (infinite resistance)

CDI Unit Internal Resistance for KX60-B13 (P/No.21119-1485)

(×1kΩ)

Tester (-) Lead Connection	Tester (+) Lead Connection			
	BK/R	O	BK/W	BK/Y
BK/R	-	∞	∞	∞
O	10 ~ 40	-	4 ~ 18	4 ~ 18
BK/W	4 ~ 18	∞	-	O
BK/Y	4 ~ 18	∞	O	-

∞ : Indicates no reading (infinite resistance)

**SUPPLEMENT FOR 1989 ~ 1997 MODELS 15-27**

CDI Unit Internal Resistance for KX80-L2, M2, N2, P2, KX100-A1

(× 1 kΩ)

Tester (-) Lead Connection	Tester (+) Lead Connection				
	BK/R	W/R	W/G	BK/Y	BK
BK/R	-	∞	∞	∞	∞
W/R	∞	-	4 ~ 16	4 ~ 16	∞
W/G	∞	3 ~ 12	-	0	∞
BK/Y	∞	3 ~ 12	0	-	∞
BK	∞	8.5 ~ 35	1.8 ~ 7	1.8 ~ 7	-

∞ : Indicates no reading (infinite resistance).

CDI Unit Internal Resistance for KX80-L3, M3, N3, P3, KX100-A2

(× 1 kΩ)

Tester (-) Lead Connection	Tester (+) Lead Connection						
	BK/Y	BK/W	BK/W	O	BK/R	W/R	W/G
BK/Y	-	2.3 ~ 5.0	2.3 ~ 5.0	∞	2.4 ~ 5.3	0	8.0 ~ 13.8
BK/W	128 ~ 420	-	0	∞	400 ~ 1200	128 ~ 420	152 ~ 480
BK/W	128 ~ 420	0	-	∞	400 ~ 1200	128 ~ 420	152 ~ 480
O	2.3 ~ 5.0	7.5 ~ 22.2	7.5 ~ 22.2	-	7.7 ~ 23.4	2.3 ~ 5.0	8.0 ~ 28.8
BK/R	*50.4 ~ 150	*120 ~ 1080	*120 ~ 1080	∞	-	*51.2 ~ 156	*76 ~ 216
W/R	0	2.3 ~ 5.0	2.3 ~ 5.0	∞	2.4 ~ 5.3	-	8.0 ~ 13.8
W/G	8.4 ~ 14.4	14.0 ~ 28.2	14.0 ~ 28.2	∞	14.4 ~ 28.8	8.4 ~ 14.4	-

∞ : Indicates no reading (infinite resistance).

(\*): Indicates deflection and return of the tester hand.

**Stator Coil Inspection**

● Refer to p. 13-12, noting the following.

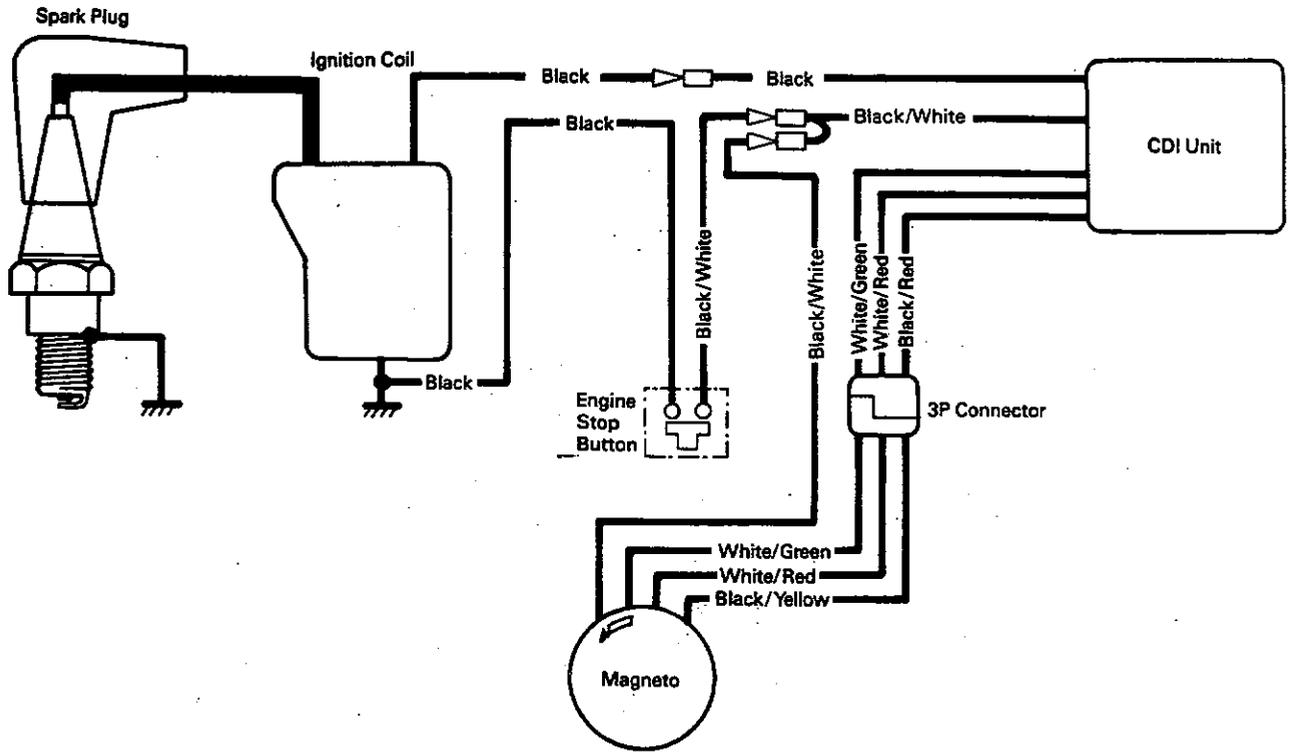
**Stator Coil Resistance (KX60-B13)**

Model	Connections	Reading
KX60	Black/Red - Black/White	92 - 108 Ω

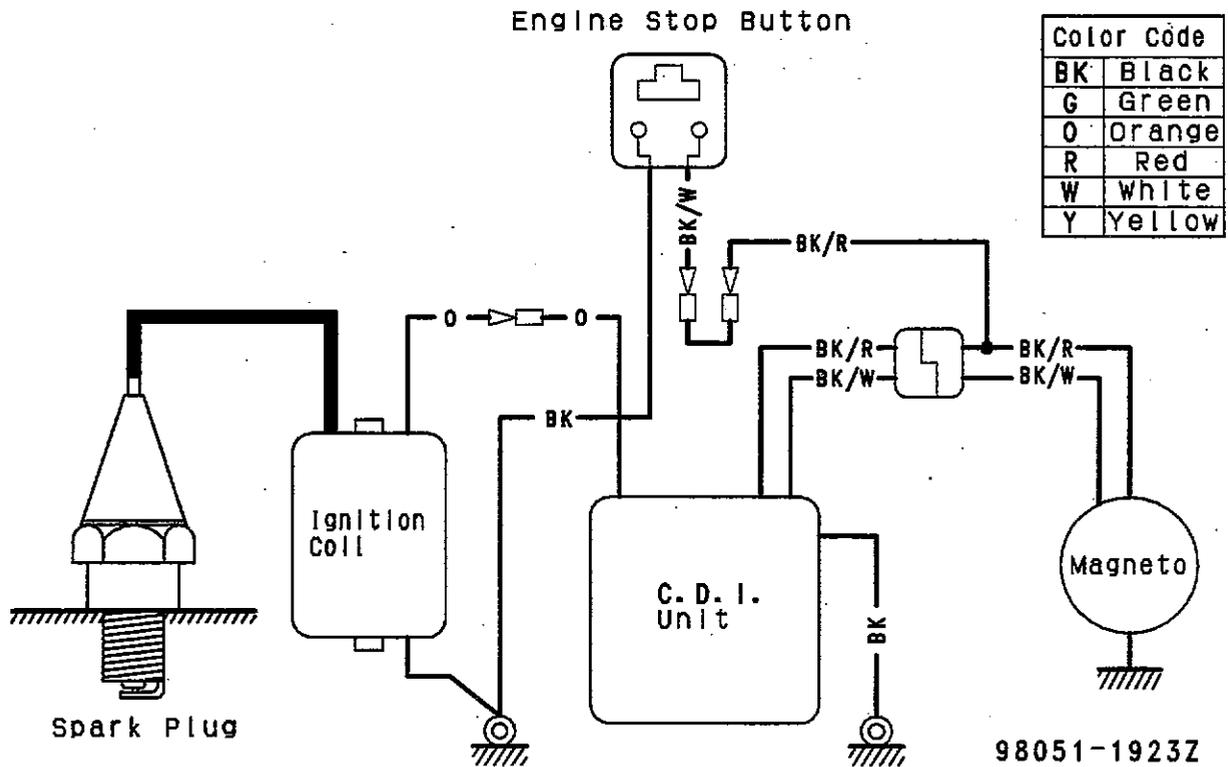
15-28 SUPPLEMENT FOR 1989 ~ 1997 MODELS

Wiring Diagram

KX80-L3, N3, KX100-A2 (UK)



KX60-B13



98051-1923Z

# Supplement - 2000 Model

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### **How to Use this Manual**

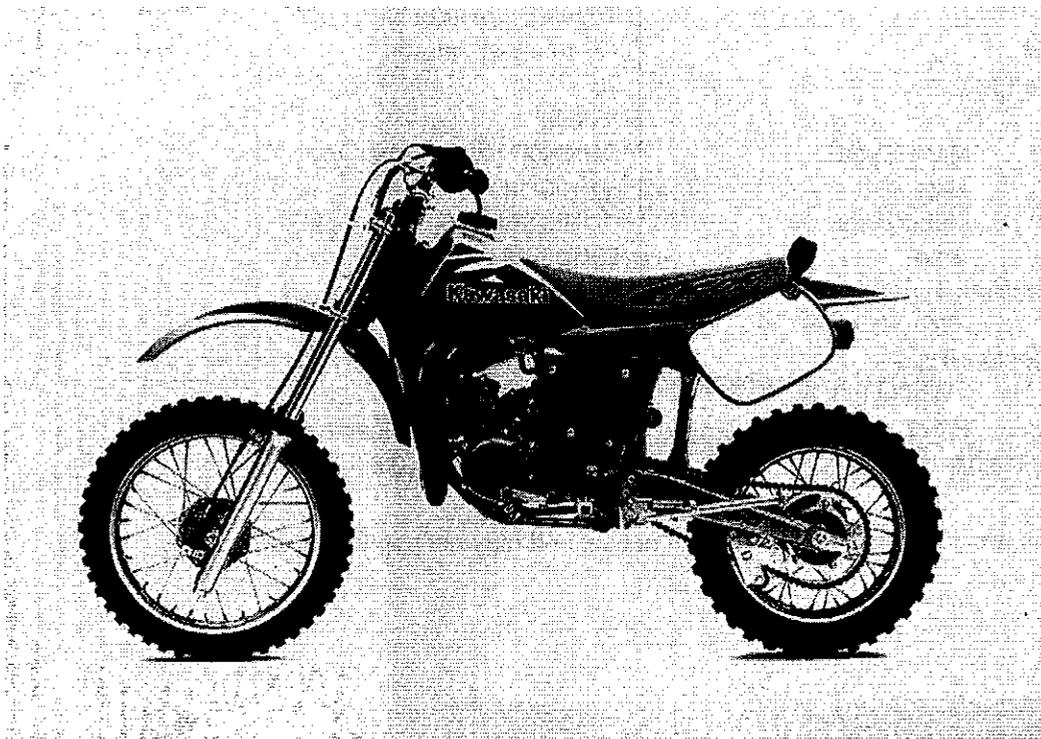
This "Supplement-2000 Model " designed to be used in conjunction with the front part of this manual (up to 15-28). The specifications and maintenance procedures described in this chapter are only those that are unique to the KX60-B16 model.

Complete and proper servicing of the KX60-B16 model therefore requires mechanics to read both this chapter and the front of this manual.

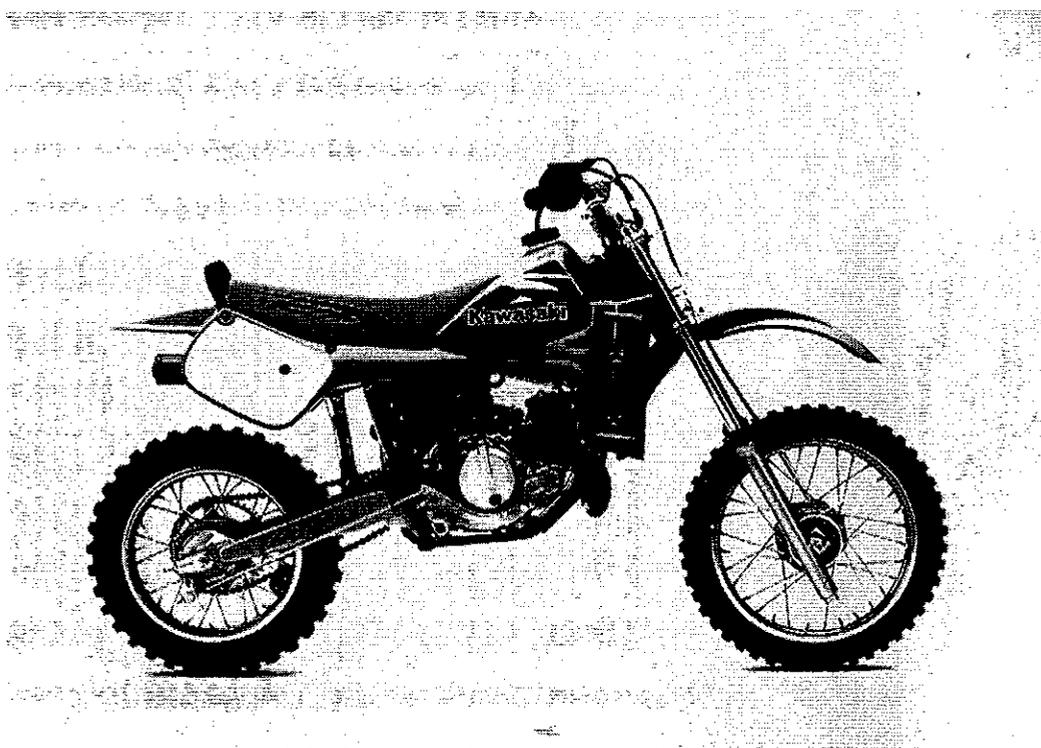
General Information

Model Identification

KX60-B16 Left Side View:



KX60-B16 Right Side View:



**General Specifications**

Items	KX60-B16
<b>Frame:</b>	
Type	Tubular, semi-double cradle
Steering angle	45° to either side
Caster (rake angle)	28°
Trail	65 mm
Front tire:      Make/Type Size	DUNLOP K490, Tube type 60/100-14
Rear tire:        Make/Type Size	DUNLOP K695, Tube type 80/100-12
Front suspension: Type Wheel travel	Telescopic fork (Air fork) 200 mm
Rear suspension: Type Wheel travel	Swing arm (Uni-trak) 200 mm
Brake type:      Front and Rear	Internal expansion, leading-trailing
Brake drum inside diameter×length	90×20 mm (3.5×0.8 in)

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

**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 overtightened may become damaged, strip and internal threads, 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 specified torque.

Letter used in the "Remarks" column mean:

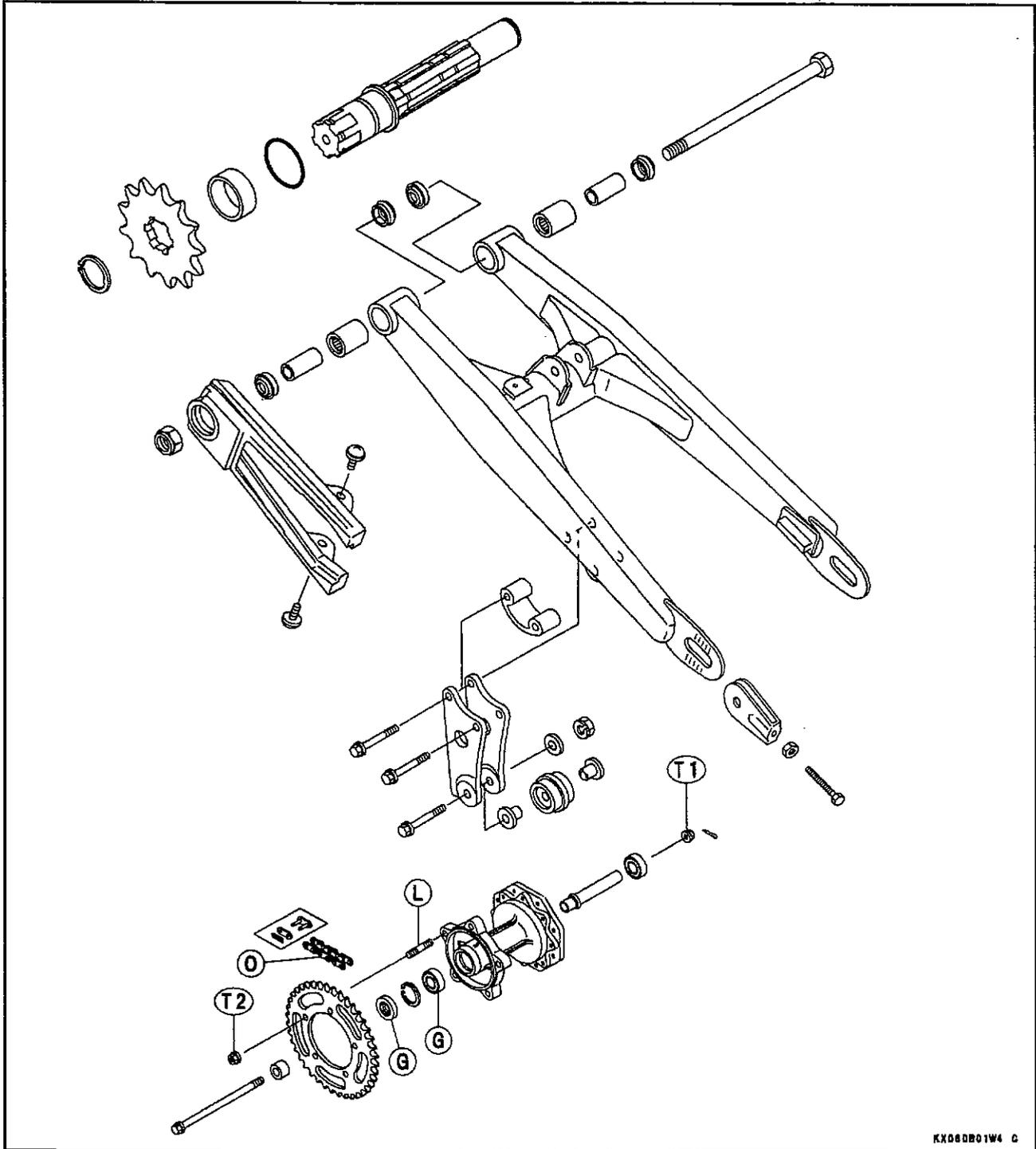
L : Apply a non-permanent locking agent to the threads.

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
<b>Wheels/Tires:</b>				
Front Axle Nut	49	5.0	36	
Rear Axle Nut:	69	7.0	51	
Spoke Nipples	1.2 ~ 2.0	0.12 ~ 0.20	10 ~ 17 in-lb	
<b>Final Drive:</b>				
Rear Axle Nut	69	7.0	51	
Rear Sprocket Nuts	27	2.7	19	
<b>Brakes:</b>				
Brake Pedal Mounting Bolt	25	2.5	18	L
<b>Suspension:</b>				
Front Fork Top Plugs	23	2.3	16.5	
Front Fork Clamp Nuts (Upper, Lower)	20	2.0	14.5	
Front Fork Cylinder (Allen) Bolts	20	2.0	14.5	L
Front Axle Nut:	49	5.0	36	
Uni-trak Arm Mounting Nut	83	8.5	61	
Uni-trak Link Nuts	49	5.0	36	
Rear Shock Absorber Mounting Nuts (Upper, Lower)	49	5.0	36	
Swing arm Pivot Shaft Nut	69	7.0	51	
<b>Steering:</b>				
Steering Stem Head Nut	44	4.5	33	
Steering Stem Nut	4.9	0.5	43 in-lb	
Handlebar Clamp Bolts	25	2.5	18	

# 16-6 SUPPLEMENT - 2000 MODEL

## Final Drive

### Exploded View



KX06001W4 C

O: Apply oil.

G: Apply grease.

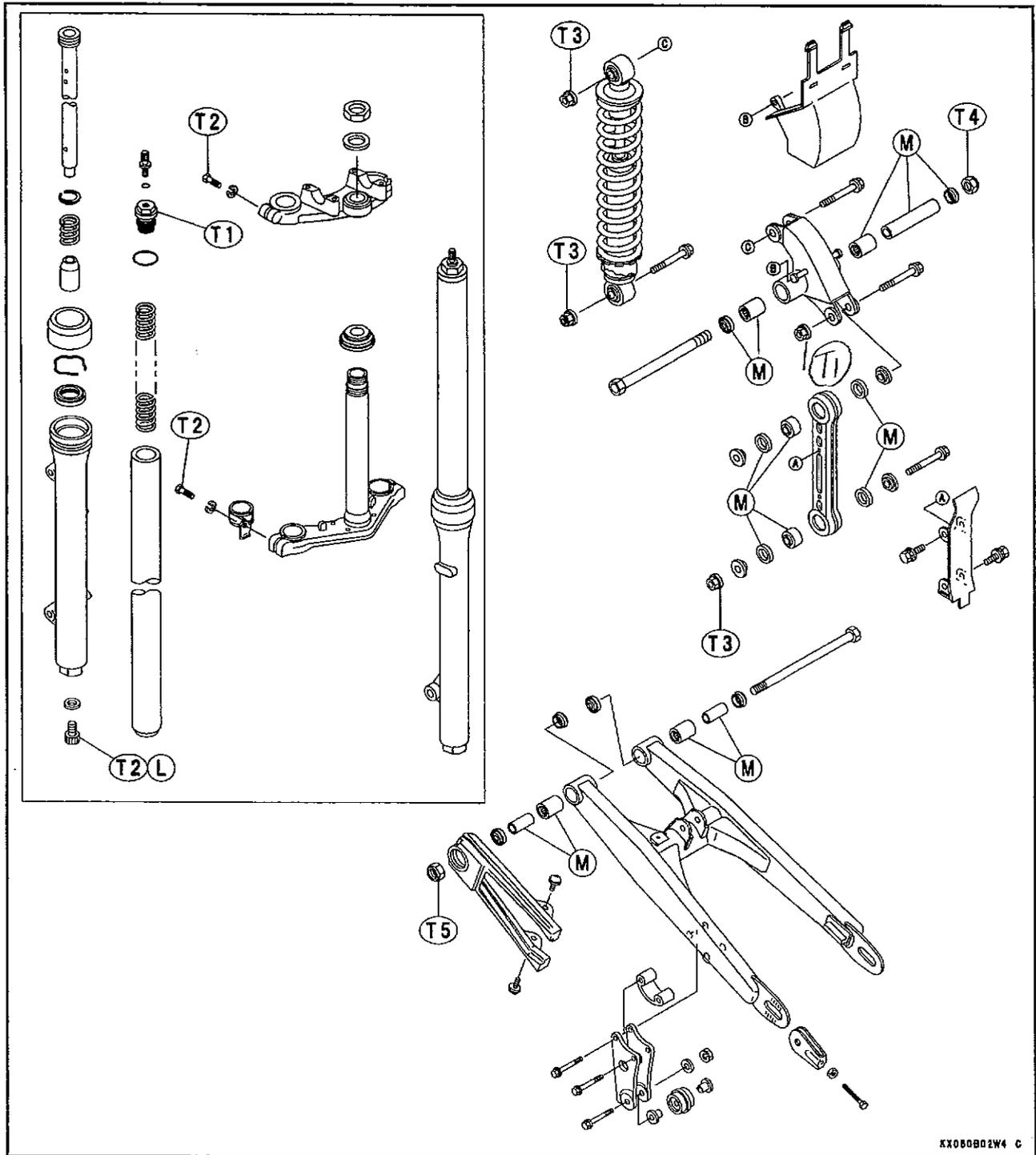
L: Apply a non-permanent locking agent.

T1: 69 N-m (7.0 kg-m, 51 ft-lb)

T2: 27 N-m (2.7 kg-m, 19 ft-lb)

Suspension

Exploded View



KX060802W4 C

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

M: Apply plenty of molybdenum disulfide grease.

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

T2: 20 N-m (2.0 kg-m, 14.5 ft-lb)

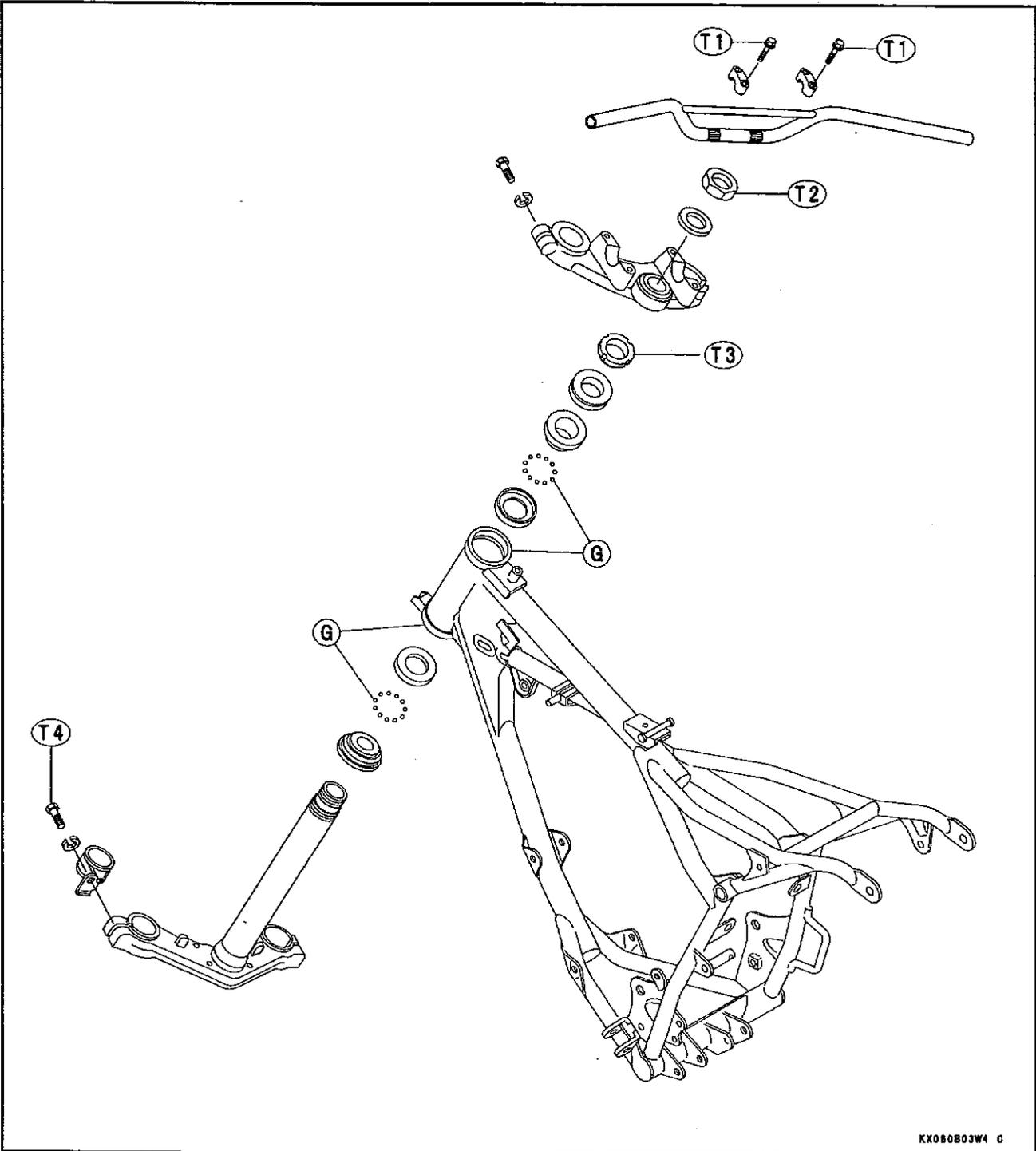
T3: 49 N-m (5.0 kg-m, 36 ft-lb)

T4: 83 N-m (8.5 kg-m, 61 ft-lb)

T5: 69 N-m (7.0 kg-m, 51 ft-lb)

Steering

Exploded View



KX08083W4 C

G: Apply grease liberally.

T1: 25 N-m (2.5 kg-m, 18 ft-lb)

T2: 44 N-m (4.5 kg-m, 33 ft-lb)

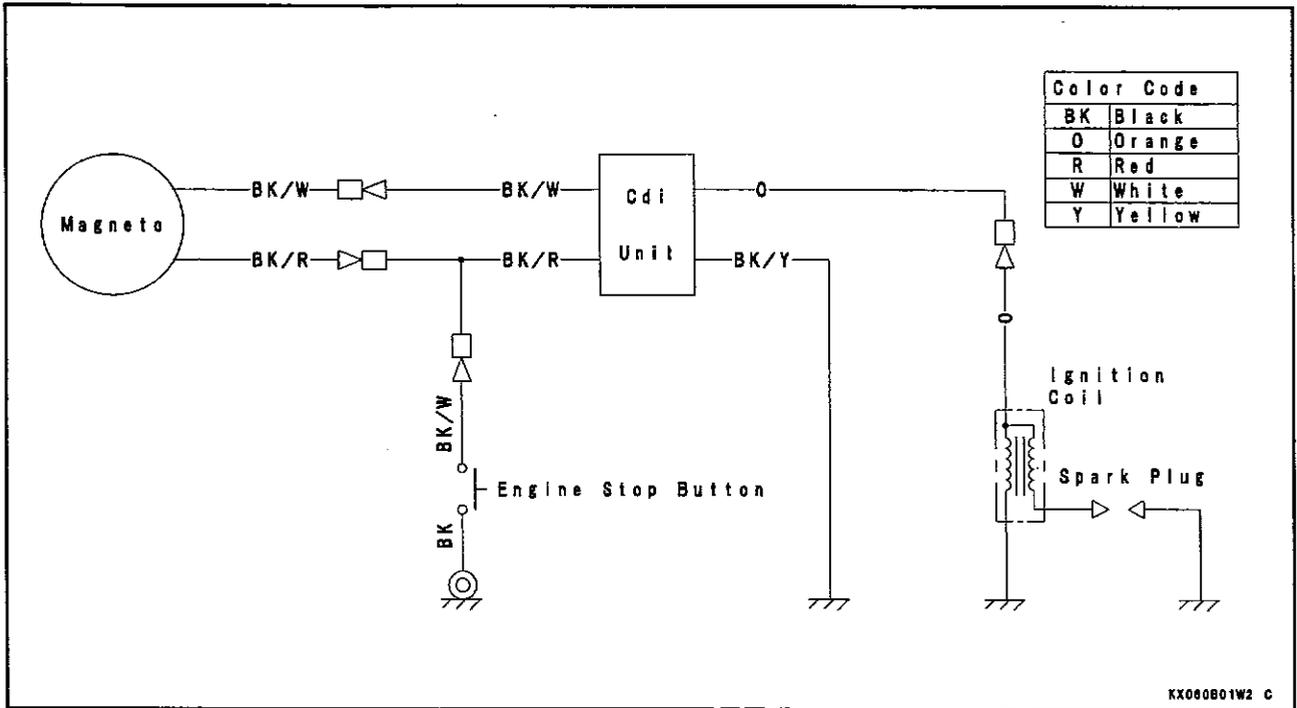
T3: Tighten all snugly, then loosen.

Retighten to 4.9 N-m (0.5 kg-m, 43 in-lb)

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

Electrical System

Wiring Diagram





### MODEL APPLICATION

Year	Model	Beginning Frame No.
1988	KX60-B4	JKAKXXB1□JA007301
	KX80-L1	JKAKXWL1□JA000001 or KX80L-000001
	KX80-M1	KX080M-000001
	KX80-N1	JKAKXWN1□JA000001 or KX080N-000001
	KX80-P1	KX080P-000001
	KDX80-C5	JKADXWC1□JA015301
1989	KX60-B5	JKAKXXB1□KA009201 or KX060B-009201
	KX80-L2	JKAKXWL1□KA003001 or KX080L-003001
	KX80-M2	KX080M-001202
	KX80-N2	JKAKXWN1□KA002201 or KX080N-002201
	KX80-P2	KX080P-000601
	KX100-A1	KX100A-000001
1990	KX60-B6	JKAKXXB1□LA010701 or KX060B-010701
	KX80-L3	JKAKXWL1□LA002501 or KX080L-008001
	KX80-M3	JKAKXWM1□LA002501 or KX080M-002501
	KX80-N3	JKAKXWN1□LA005001 or KX080N-005001
	KX80-P3	JKAWP1□LA002001 or KX080P-002001
	KX100-A2	JKAKXTA1□LA000801 or KX100A-000801
1991	KX60-B7	JKAKXXB1□MA013501 or KX060B-03501
1992	KX60-B8	JKAKXXB1□NA017001 or KX060B-017001
1993	KX60-B9	JKAKXXB1□PA019001 or KX060B-019001
1994	KX60-B10	JKAKXXB1□RA022001 or KX060B-022001
1995	KX60-B11	JKAKXXB1□SA026001 or KX060B-026001
1996	KX60-B12	JKAKXXB1□TA035001 or KX060B-035001
1997	KX60-B13	JKAKXXB1□VA040001 or KX060B-040001
2000	KX60-B16	JKAKXXBC□YA062001 or JKAKX060BBA062001

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