

Product: 2007 Kawasaki BRUTE FORCE 750 4x4i/KVF750 4x4 All Terrain Vehicle Service Repair Workshop Manual
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Kawasaki

BRUTE FORCE 750 4x4i

KVF750 4x4



All Terrain Vehicle Service Manual

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

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



BRUTE FORCE 750 4×4i
KVF750 4×4

All Terrain Vehicle Service Manual

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

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

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

LIST OF ABBREVIATIONS

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

COUNTRY AND AREA CODES

CA	Canada	EUR	Europe
US	United States		

EMISSION CONTROL INFORMATION

To protect the environment in which we all live, Kawasaki has incorporated crankcase emission (1) and exhaust emission (2) control systems in compliance with applicable regulations of the United States Environmental Protection Agency and California Air Resources Board.

Additionally, Kawasaki has incorporated an evaporative emission control system (3) in compliance with applicable regulations of the United States Environmental Protection Agency.

1. Crankcase Emission Control System

A sealed-type crankcase emission control system is used to eliminate blow-by gases. The blow-by gases are led to the breather chamber through the crankcase. Then, it is led to the air cleaner. Oil is separated from the gases while passing through the inside of the breather chamber from the crankcase, and then returned back to the bottom of crankcase.

2. Exhaust Emission Control System

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

A maintenance free ignition system provides the most favorable ignition timing and helps maintain a thorough combustion process within the engine which contributes to a reduction of exhaust pollutants entering the atmosphere.

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

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

3. Evaporative Emission Control System

The evaporative emission control system for this vehicle consists of low permeation fuel hoses and a fuel tank.

(3)(A) for any person to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title prior to its sale and delivery to the ultimate purchaser, or for any manufacturer or dealer knowingly to remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser.

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

NOTE

○ *The phrase "remove or render inoperative any device or element of design" has been generally interpreted as follows:*

1. *Tampering does not include the temporary removal or rendering inoperative of devices or elements of design in order to perform maintenance.*
2. *Tampering could include:*
 - a. *Maladjustment of vehicle components such that the emission standards are exceeded.*
 - b. *Use of replacement parts or accessories which adversely affect the performance or durability of the vehicle.*
 - c. *Addition of components or accessories that result in the vehicle exceeding the standards.*
 - d. *Permanently removing, disconnecting, or rendering inoperative any component or element of design of the emission control systems.*

**WE RECOMMEND THAT ALL DEALERS OBSERVE THESE PROVISIONS OF FEDERAL LAW,
THE VIOLATION OF WHICH IS PUNISHABLE BY CIVIL PENALTIES NOT EXCEEDING
\$10,000 PER VIOLATION.**

**PLEASE DO NOT TAMPER WITH NOISE CONTROL SYSTEM
(US MODEL only)**

TAMPERING WITH EMISSION CONTROL SYSTEM PROHIBITED:

Federal regulations and California State law prohibit the following acts or the causing thereof: (1) the removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purposes of emission control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Do not tamper with the original emission related parts:

- Throttle body or internal parts
- Spark plugs
- Magneto ignition system
- Fuel pump/Fuel injectors
- Air cleaner element
- Electronic control unit (ECU)

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED:

Federal law prohibits the following acts or the causing thereof: (1) the removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

- * Replacement of the original exhaust system or muffler with a component not in compliance with Federal regulations.
- * Removal of the muffler or any internal portion of the muffler.
- * Removal of the air cleaner housing or air cleaner housing cover.
- * Modifications to the muffler or air intake system by cutting, drilling, or other means if such modifications result in increased noise levels.
- * Modification to the air cleaner element.

Foreword

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

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

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

To get the longest life out of your vehicle:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki Vehicle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki vehicles are introduced by the Service 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 this manual, the product is divided into its major systems and these systems make up the manual's chapters. 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.

For example, if you want ignition coil information, 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 Ignition Coil section.

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

WARNING

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

CAUTION

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

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

NOTE

○ *This note symbol indicates points of particular interest for more efficient and convenient operation.*

- Indicates a procedural step or work to be done.
- Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a NOTE.
- ★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

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

General Information

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1-2 GENERAL INFORMATION

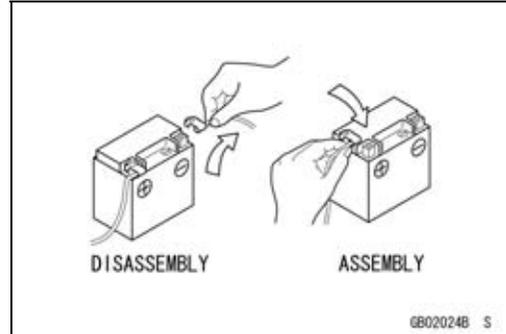
Before Servicing

Before starting to perform an inspection service or carry out a disassembly and reassembly operation on a vehicle, read the precautions given below. To facilitate actual operations, notes, illustrations, photographs, cautions, and detailed descriptions have been included in each chapter wherever necessary. This section explains the items that require particular attention during the removal and reinstallation or disassembly and reassembly of general parts.

Especially note the following:

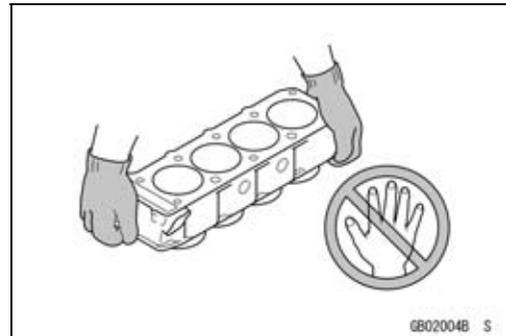
Battery Ground

Before completing any service on the vehicle, disconnect the battery wires from the battery to prevent the engine from accidentally turning over. Disconnect the ground wire (-) first and then the positive (+). When completed with the service, first connect the positive (+) wire to the positive (+) terminal of the battery then the negative (-) wire to the negative terminal.



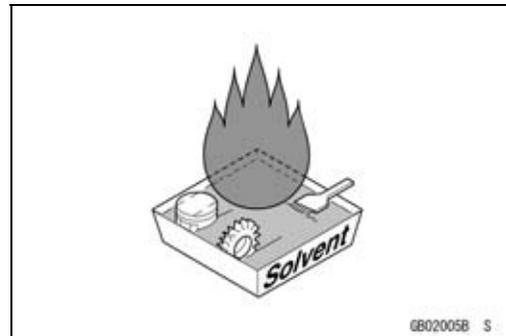
Edges of Parts

Lift large or heavy parts wearing gloves to prevent injury from possible sharp edges on the parts.



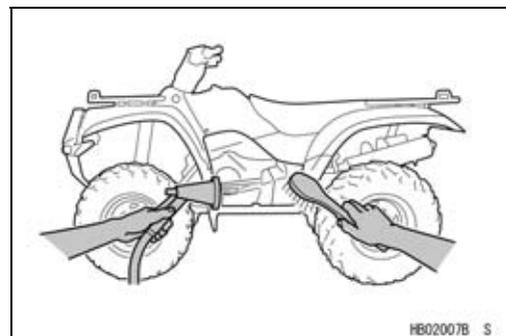
Solvent

Use a high-flash point solvent when cleaning parts. High-flash point solvent should be used according to directions of the solvent manufacturer.



Cleaning Vehicle before Disassembly

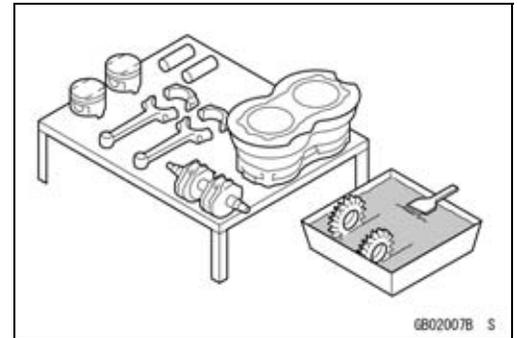
Clean the vehicle thoroughly before disassembly. Dirt or other foreign materials entering into sealed areas during vehicle disassembly can cause excessive wear and decrease performance of the vehicle.



Before Servicing

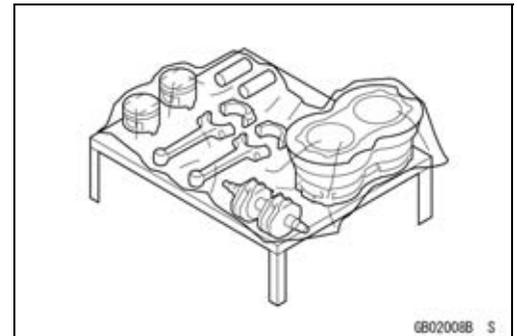
Arrangement and Cleaning of Removed Parts

Disassembled parts are easy to confuse. Arrange the parts according to the order the parts were disassembled and clean the parts in order prior to assembly.



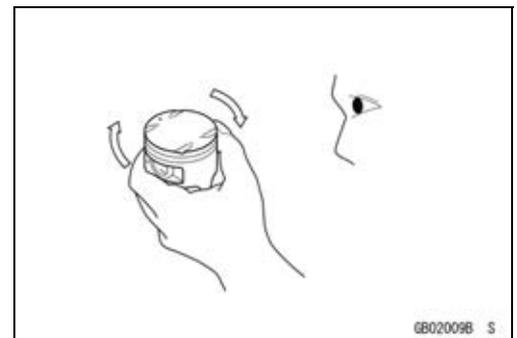
Storage of Removed Parts

After all the parts including subassembly parts have been cleaned, store the parts in a clean area. Put a clean cloth or plastic sheet over the parts to protect from any foreign materials that may collect before re-assembly.



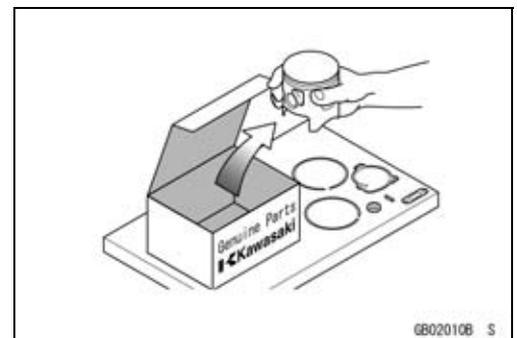
Inspection

Reuse of worn or damaged parts may lead to serious accident. Visually inspect removed parts for corrosion, discoloration, or other damage. Refer to the appropriate sections of this manual for service limits on individual parts. Replace the parts if any damage has been found or if the part is beyond its service limit.



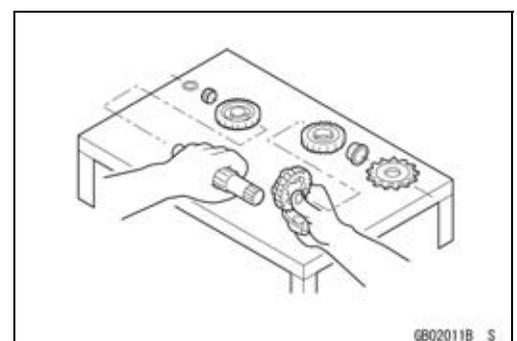
Replacement Parts

Replacement Parts must be KAWASAKI genuine or recommended by KAWASAKI. Gaskets, O-rings, Oil seals, Grease seals, circlips or cotter pins must be replaced with new ones whenever disassembled.



Assembly Order

In most cases assembly order is the reverse of disassembly, however, if assembly order is provided in this Service Manual, follow the procedures given.

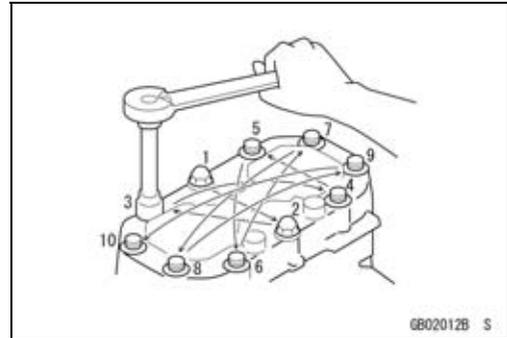


1-4 GENERAL INFORMATION

Before Servicing

Tightening Sequence

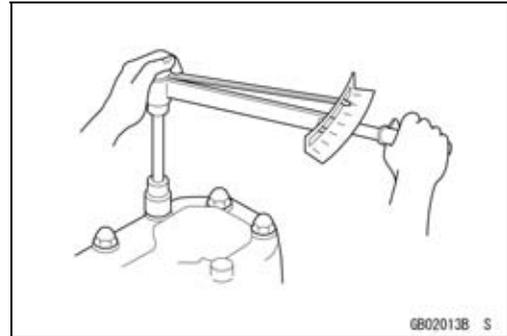
Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them according to the specified sequence to prevent case warpage or deformation which can lead to malfunction. Conversely when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter turn and then remove them. If the specified tightening sequence is not indicated, tighten the fasteners alternating diagonally.



Tightening Torque

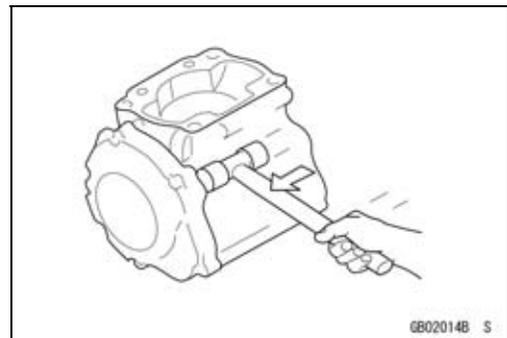
Incorrect torque applied to a bolt, nut, or screw may lead to serious damage. Tighten fasteners to the specified torque using a good quality torque wrench.

Often, the tightening sequence is followed twice: initial tightening and final tightening with torque wrench.



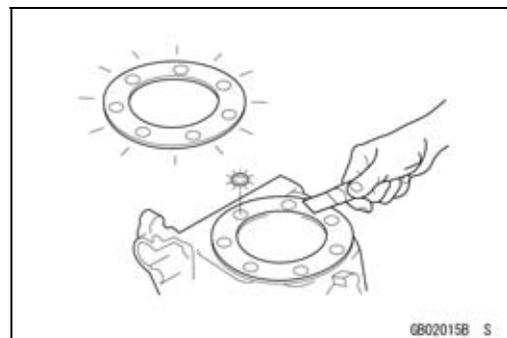
Force

Use common sense during disassembly and assembly, excessive force can cause expensive or hard to repair damage. When necessary, remove screws that have a non-permanent locking agent applied using an impact driver. Use a plastic-faced mallet whenever tapping is necessary.



Gasket, O-ring

Hardening, shrinkage, or damage of both gaskets and O-rings after disassembly can reduce sealing performance. Remove old gaskets and clean the sealing surfaces thoroughly so that no gasket material or other material remains. Install new gaskets and replace used O-rings when re-assembling.



Liquid Gasket, Locking Agent

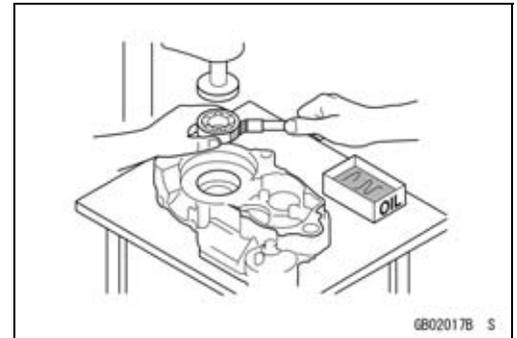
For applications that require Liquid Gasket or a Non-Permanent Locking Agent, clean the surfaces so that no oil residue remains before applying liquid gasket or locking agent. Do not apply them excessively. Excessive application can clog oil passages and cause serious damage.



Before Servicing

Press

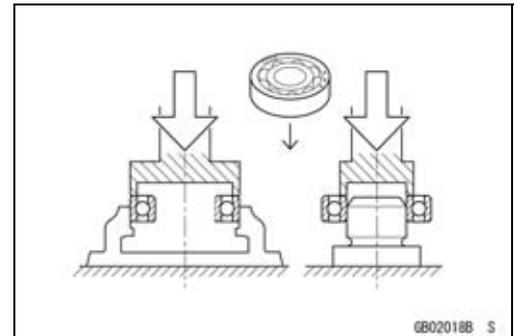
For items such as bearings or oil seals that must be pressed into place, apply small amount of oil to the contact area. Be sure to maintain proper alignment and use smooth movements when installing.



Ball Bearing and Needle Bearing

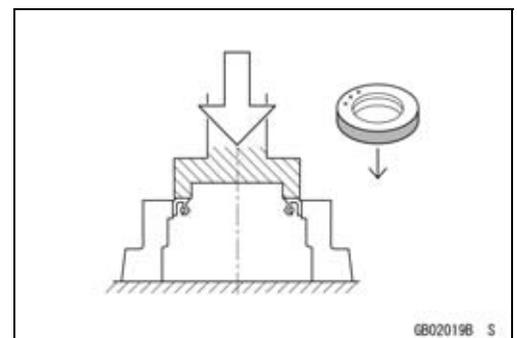
Do not remove pressed ball or needle unless removal is absolutely necessary. Replace with new ones whenever removed. Press bearings with the manufacturer and size marks facing out. Press the bearing into place by putting pressure on the correct bearing race as shown.

Pressing the incorrect race can cause pressure between the inner and outer race and result in bearing damage.

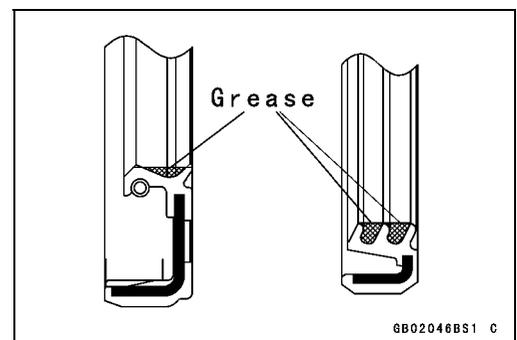


Oil Seal, Grease Seal

Do not remove pressed oil or grease seals unless removal is necessary. Replace with new ones whenever removed. Press new oil seals with manufacture and size marks facing out. Make sure the seal is aligned properly when installing.

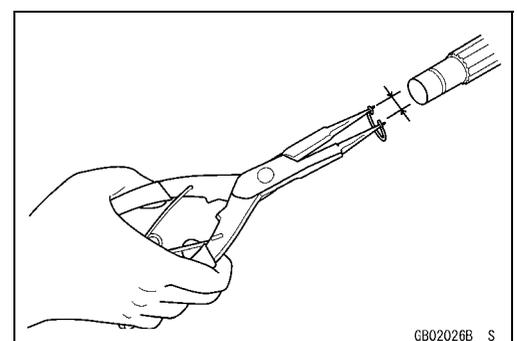


Apply specified grease to the lip of seal before installing the seal.



Circlips, Cotter Pins

Replace circlips or cotter pins that were removed with new ones. Take care not to open the clip excessively when installing to prevent deformation.

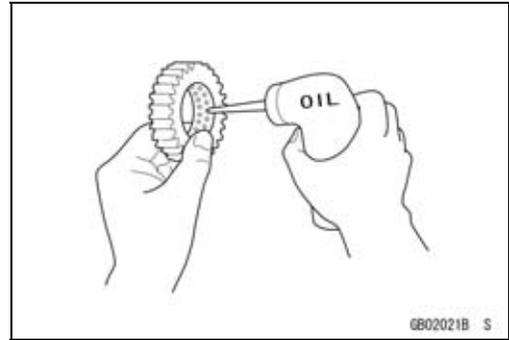


1-6 GENERAL INFORMATION

Before Servicing

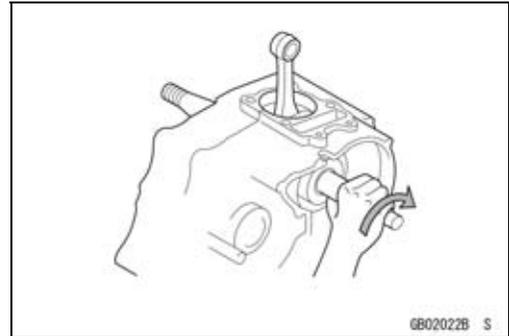
Lubrication

It is important to lubricate rotating or sliding parts during assembly to minimize wear during initial operation. Lubrication points are called out throughout this manual, apply the specific oil or grease as specified.



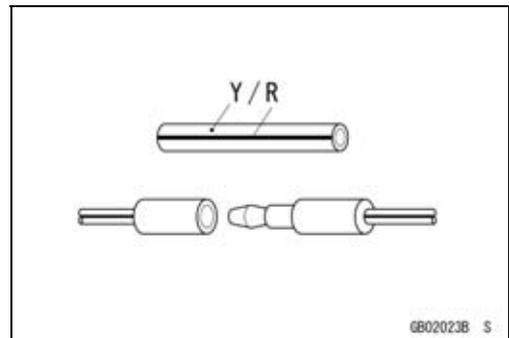
Direction of Engine Rotation

When rotating the crankshaft by hand, the free play amount of rotating direction will affect the adjustment. Rotate the crankshaft to positive direction (clockwise viewed from output side).



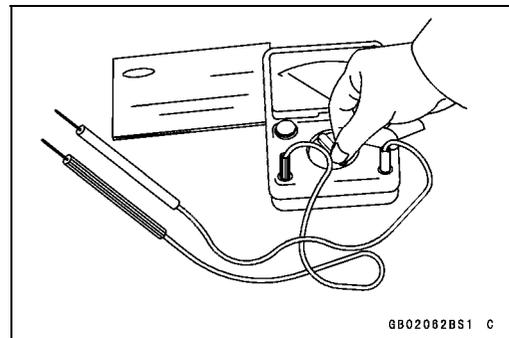
Electrical Wires

A two-color wire is identified first by the primary color and then the stripe color. Unless instructed otherwise, electrical wires must be connected to those of the same color.



Instrument

Use a meter that has enough accuracy for an accurate measurement. Read the manufacture's instructions thoroughly before using the meter. Incorrect values may lead to improper adjustments.



Model Identification

KVF750D8F Left Side View



KVF750D8F Right Side View

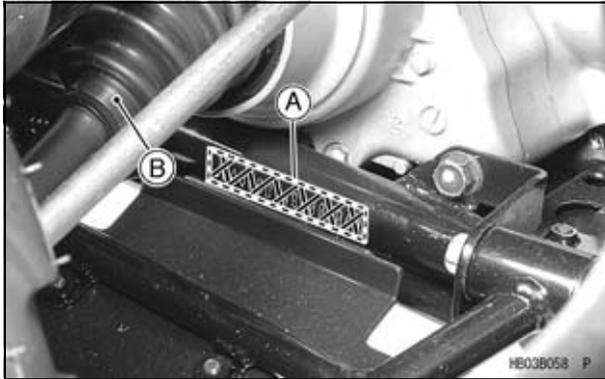


The KVF750E is a camouflage-surface-treated model and identical to the KVF750D, the base model, in every other aspect: controls, features, and specifications.
The KVF750F is identical to the KVF750D in every other aspect, that is, controls, features, and specifications.

1-8 GENERAL INFORMATION

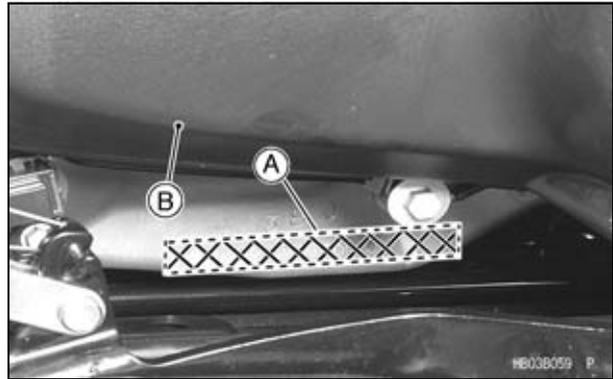
Model Identification

Frame Number



- [A] Frame Number
- [B] Left Front Axle

Engine Number



- [A] Engine Number
- [B] Torque Converter Cover

General Specifications

Items	KVF750D8F, E8F, F8F
Dimensions Overall Length Overall Width Overall Height Wheelbase Ground Clearance: Seat Height Dry Mass Curb Mass: Front Rear Fuel Tank Capacity	2 195 mm (86.42 in.) 1 166 mm (45.90 in.) 1 233 mm (48.54 in.) 1 284 mm (50.55 in.) 247 mm (9.72 in.) 903 mm (35.6 in.) 274.5 kg (605.3 lb), (EUR) 275 kg (606 lb) 148.5 kg (327.4 lb), (EUR) 149 kg (328 lb) 147 kg (324 lb) 19 L (5.0 US gal)
Performance Minimum Turning Radius	3.2 m (10.5 ft)
Engine Type Cooling System Bore and Stroke Displacement Compression Ratio Maximum Horsepower Maximum Torque Carburetion System Starting System Ignition System Timing Advance Ignition Timing Spark Plug Cylinder Numbering Method Firing Order Valve Timing: Inlet: Open Close Duration Exhaust: Open Close Duration Lubrication System	4-stroke, SOHC, V2-cylinders Liquid-cooled 85 × 66 mm (3.35 × 2.60 in.) 749 cm ³ (45.7 cu in.) 8.8 : 1 37.1 kW (50.9 PS) @6 500 r/min (rpm), (CA), (US) – – – 59.4 N·m (6.2 kgf·m, 45 ft·lb) @4 500 r/min (rpm) (CA), (US) – – – FI (Fuel Injection) Mikuni ϕ 36 × 2 Electric Starter Battery and Coil (transistorized) Electronically advanced (digital) 10° BTDC @1 100 r/min (rpm) NGK CR7E Front to rear, 1-2 1-2 20° BTDC 44° ABDC 244° 44° BBDC 20° ATDC 244° Forced lubrication (wet sump)

1-10 GENERAL INFORMATION

General Specifications

Items	KVF750D8F, E8F, F8F
Engine oil: Type Viscosity Capacity	API SF or SG API SH, SJ or SL with JASO MA SAE 10W-40 2.6 L (2.7 US qt)
Drive Train Primary Reduction System: Type Reduction Ratio Transmission: Type Gear Ratios: Forward: High Low Reverse Final Drive System: Type Reduction Ratio Overall Drive Ratio: Forward: High Low Reverse Front Final Gear Case Oil: Type Viscosity Capacity Rear Final Gear Case Oil: Type Capacity	Belt converter 3.122 ~ 0.635 2-speed and reverse 3.098 (30/26 × 29/18 × 20/12) 4.833 (36/20 × 29/18 × 20/12) 4.028 (16/12 × 18/16 × 29/18 × 20/12) Shaft 2WD/4WD 4.375 (35/8) 42.32 ~ 8.61 66.02 ~ 13.43 55.01 ~ 11.19 API SF or SG API SH, SJ or SL with JASO MA SAE10W-40 0.40 L (0.42 US qt) MOBIL FLUID 424, CITGO TRANSGARD TRACTOR HYDRAULIC FLUID, or EXXON HYDRAUL 560 0.72 L (0.76 US qt)
Frame Type Caster (Rake Angle) Camber King Pin Angle Trail Tread: Front Rear	Double tubular 2.0° 0.6° 10.5° 12 mm (0.47 in.) 930 mm (36.6 in.) 895 mm (35.2 in.)

General Specifications

Items	KVF750D8F, E8F, F8F
Rim Size: Front Rear Front tire: Type Size Rear tire: Type Size Suspension: Front: Type Wheel Travel Rear: Type Wheel Travel Brake: Front Rear Parking Brake	 12 × 6.0 12 × 7.5 Tubeless AT25 × 8-12 Tubeless AT25 × 10-2 Double Wishbone 171 mm (6.73 in.) Double Wishbone 200 mm (7.87 in.) Disc × 2 Enclosed wet multi-plate Enclosed wet multi-plate
Electrical Equipment Battery Headlight: Type Bulb Tail/brake Light: Bulb Reverse Light: Bulb Alternator: Type Rated Output	 12 V 12 Ah Semi-sealed beam 12 V 40/40 W × 2 12 V 5/21 W (EUR) 12 V 10 W Three - phase AC 24.3 A, 14 V @6 000 r/min (rpm)

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

EUR: Europe Model

US: United States Model

1-12 GENERAL INFORMATION

Unit Conversion Table

Prefixes for Units:

Prefix	Symbol	Power
mega	M	× 1 000 000
kilo	k	× 1 000
centi	c	× 0.01
milli	m	× 0.001
micro	μ	× 0.000001

Units of Mass:

kg	×	2.205	=	lb
g	×	0.03527	=	oz

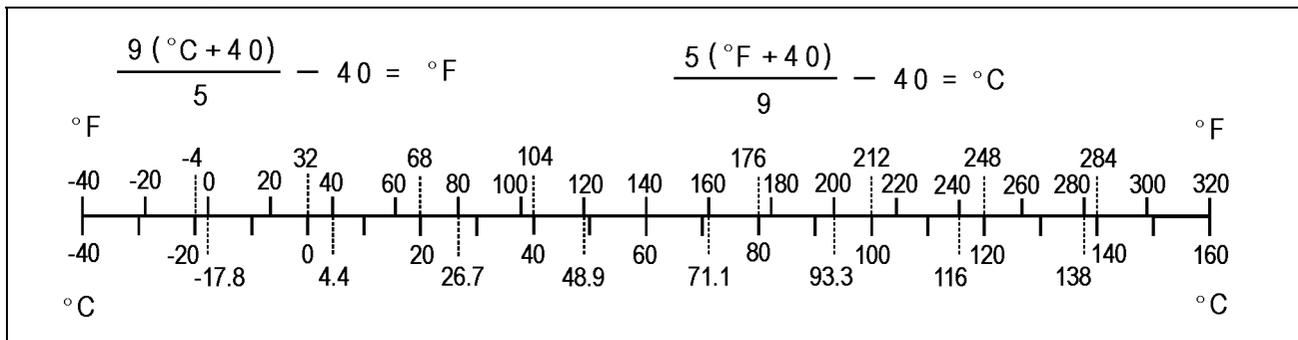
Units of Volume:

L	×	0.2642	=	gal (US)
L	×	0.2200	=	gal (imp)
L	×	1.057	=	qt (US)
L	×	0.8799	=	qt (imp)
L	×	2.113	=	pint (US)
L	×	1.816	=	pint (imp)
mL	×	0.03381	=	oz (US)
mL	×	0.02816	=	oz (imp)
mL	×	0.06102	=	cu in

Units of Force:

N	×	0.1020	=	kg
N	×	0.2248	=	lb
kg	×	9.807	=	N
kg	×	2.205	=	lb

Units of Temperature



Units of Length:

km	×	0.6214	=	mile
m	×	3.281	=	ft
mm	×	0.03937	=	in

Units of Torque:

N·m	×	0.1020	=	kgf·m
N·m	×	0.7376	=	ft·lb
N·m	×	8.851	=	in·lb
kgf·m	×	9.807	=	N·m
kgf·m	×	7.233	=	ft·lb
kgf·m	×	86.80	=	in·lb

Units of Pressure:

kPa	×	0.01020	=	kgf/cm ²
kPa	×	0.1450	=	psi
kPa	×	0.7501	=	cmHg
kgf/cm ²	×	98.07	=	kPa
kgf/cm ²	×	14.22	=	psi
cmHg	×	1.333	=	kPa

Units of Speed:

km/h	×	0.6214	=	mph
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Units of Power:

kW	×	1.360	=	PS
kW	×	1.341	=	HP
PS	×	0.7355	=	kW
PS	×	0.9863	=	HP

Periodic Maintenance

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2-2 PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE 2-3

Periodic Maintenance Chart

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

FREQUENCY	First Service	Regular Service				
	After 10 hrs. or 100 km (60 mi.) of use	Every 10 days or 200 km (120 mi.) of use	Every 30 days or 600 km (360 mi.) of use	Every 90 days, 1 700 km (1 100 mi.) of use or when belt indicator light turns on (100 hrs of use) whichever comes first	Every year of use	See page
OPERATION						
ENGINE						
Converter drive belt wear-inspect*				●		2-24
Converter drive belt deflection- inspect*				●		2-25
Converter drive belt failure detection system function-inspect*				●		2-37
Engine brake control lever-inspect*				●		2-27
Air cleaner-inspect*	●	●				2-16
Throttle lever play-inspect	●	●				2-14
Idle speed-inspect			●			2-15
Valve clearance-inspect	First 1 700 km (1 100 mile); thereafter every 3 400 km (2 200 mile)					2-22
Engine oil-change*	●			●		2-27
Oil filter-replace*	●			●		2-27
Spark plug-clean and gap	●			●		2-36
Spark arrester-clean					●	2-23
Fuel hoses and connections-inspect				●		2-17
Fuel hose-replace	4 years					2-17
Radiator-clean*	●	●				2-18
Radiator hoses and connections-inspect*	●				●	2-19
Coolant-change*	2 years					2-19
CHASSIS						
Joint boots-inspect*	●	●				2-39
Rear brake pedal and lever play-inspect*	●	●				2-34
Rear brake plates-replace*	every 10 000 km (6 000 mi.)					2-34
Bolts and nuts-tighten	●	●				2-41
Front brake pad wear-inspect*	●		●			2-31
Brake light switch-inspect*	●		●			2-36
Steering-inspect	●			●		2-35
Differential control lever play-inspect	●	●				2-28
Tire wear-inspect*			●			2-28

2-4 PERIODIC MAINTENANCE

Periodic Maintenance Chart

FREQUENCY	First Service	Regular Service				
	After 10 hrs. or 100 km (60 mi.) of use	Every 10 days or 200 km (120 mi.) of use	Every 30 days or 600 km (360 mi.) of use	Every 90 days, 1 700 km (1 100 mi.) of use or when belt indicator light turns on (100 hrs of use) whichever comes first	Every year of use	See page
OPERATION						
Front and rear final gear case oil-change	●				●	2-29
Rear propeller shaft universal joint lubrication-perform*				●		2-31
General lubrication-perform*			●			2-40
Front brake fluid level-inspect	●		●			2-32
Front brake fluid-change					●	2-33
Front brake hoses and connections-inspect				●		2-31
Front brake master cylinder piston assembly and dust cover-replace		2 years				2-33
Front brake caliper fluid seal and dust seal-replace		2 years				2-34
Front brake hose-replace		4 years				2-32

*: Service more frequently when operated in mud, dust, or other harsh riding conditions, or when carrying heavy loads or pulling a trailer.

●: Clean, adjust, lubricate, torque, or replace parts as necessary.

Torque and Locking Agent

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

Letters used in the "Remarks" column mean:

L: Apply a non-permanent locking agent.

LB: Apply a non-permanent locking agent (Three Bond TB2471, Blue).

Lh: Left-hand Threads

MO: Apply molybdenum disulfide oil (mixture of the engine oil and molybdenum disulfide grease in a weight ratio: 10 : 1).

R: Replacement Parts

S: Follow the specific tightening sequence.

SS: Apply silicone sealant (Kawasaki Bond: 56019-120).

St: Stake the fasteners to prevent loosening.

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Fuel System				
Air Cleaner Housing Bolts	8.8	0.90	78 in·lb	
ISC Valve Mounting Bolts	8.8	0.90	78 in·lb	
Water Temperature Sensor	12	1.2	106 in·lb	
Air Cleaner Element Holder Screw	3.5	0.36	31 in·lb	
Air Cleaner Element Holder Tapping Screw	1.5	0.15	13 in·lb	
Inlet Air Pressure Sensor Mounting Screw	5.0	0.51	44 in·lb	
Delivery Pipe Mounting Screws	5.0	0.51	44 in·lb	
Fuel Pump Bolts	4.0	0.41	35 in·lb	
Fuel Tank Mounting Bolts	9.8	1.0	87 in·lb	
Throttle Lever Limiter Screw	3.6	0.37	32 in·lb	
Throttle Lever Limiter Nut	3.6	0.37	32 in·lb	
Throttle Case Assembly Screws	3.6	0.37	32 in·lb	
Cooling System				
Radiator Mounting Bolts	8.8	0.90	78 in·lb	
Radiator Screen Mounting Bolts	4.0	0.40	35 in·lb	
Radiator Fan Assembly Bolts	4.9	0.50	43 in·lb	
Thermostat Housing Cover Bolts	8.8	0.90	78 in·lb	
Water Pump Cover Bolts	8.8	0.90	78 in·lb	
Coolant Drain Bolt	8.8	0.90	78 in·lb	
Water Pump Impeller	7.8	0.80	69 in·lb	
Water Pipe Joint Bolt	8.8	0.90	78 in·lb	
Reserve Tank Mounting Screws	4.0	0.40	35 in·lb	L
Engine Top End				
Rocker Case Bolts 55 mm (2.2 in.)	8.8	0.90	78 in·lb	S
Rocker Case Bolts 130 mm (5.1 in.)	9.8	1.0	87 in·lb	S
Rocker Case Bolts 30 mm (1.2 in.)	9.8	1.0	87 in·lb	S
Rocker Case Bolts 25 mm (1.0 in.)	9.8	1.0	87 in·lb	S
Cylinder Head Bolts (M10), first torque	25	2.5	18	S, MO
Cylinder Head Bolts (M10), final torque	49	5.0	36	S
Cylinder Head Bolts (M6)	9.8	1.0	87 in·lb	
Valve Adjusting Cap Bolts	8.8	0.90	78 in·lb	

2-6 PERIODIC MAINTENANCE

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Rocker Shaft Bolts	22	2.2	16	
Valve Adjusting Screw Locknuts	12	1.2	106 in·lb	
Camshaft Chain Tensioner Mounting Bolts	8.8	0.90	78 in·lb	
Camshaft Chain Tensioner Cap Bolts	22	2.2	16	
Position Plate Bolts	8.8	0.90	78 in·lb	
Intermediate Shaft Chain Guide Bolts	8.8	0.90	78 in·lb	EO
Intermediate Shaft Chain Tensioner Bolts	8.8	0.90	78 in·lb	
Camshaft Sprocket Bolts	12	1.2	106 in·lb	L
Cylinder Bolts 40 mm (1.6 in.)	9.8	1.0	87 in·lb	
Cylinder Bolts 30 mm (1.2 in.)	9.8	1.0	87 in·lb	
Front Cylinder Camshaft Chain Guide Bolt	20	2.0	15	
Rear Cylinder Camshaft Chain Guide Bolt	20	2.0	15	
Exhaust Pipe Cover Bolts	8.8	0.90	78 in·lb	
Exhaust Pipe Holder Nuts	17	1.7	12	
Muffler Clamp Bolt	8.8	0.90	78 in·lb	
Muffler Mounting Nuts	20	2.0	14	
Muffler Mounting Locknuts	31	3.2	23	
Muffler Cover Bolts	8.8	0.90	78 in·lb	
Converter System				
Drive Pulley Bolt	93	9.5	68	R, Lh
Driven Pulley Nut	93	9.5	68	
Drive Pulley Cover Bolt	13	1.3	115 in·lb	
Ramp Weight Nuts	6.9	0.70	61 in·lb	
Spider	275	28	203	Lh
Torque Converter Cover Bolts	8.8	0.90	78 in·lb	S
Engine Brake Actuator Mounting Bolts	8.8	0.90	78 in·lb	S
Engine Lubrication System				
Oil Filter	17.5	1.8	13	R
Oil Pressure Switch	15	1.5	11	SS
Oil Pipe Bolts	8.8	0.90	78 in·lb	
Engine Oil Drain Bolt	20	2.0	15	
Oil Pressure Relief Valve	15	1.5	11	L
Oil Pump Cover Bolts	8.8	0.90	78 in·lb	
Oil Pump Chain Guide Bolts	8.8	0.90	78 in·lb	
Oil Pump Drive Chain Tensioner Bolt	25	2.5	18	
Oil Filter Mounting Bolts	25	2.5	18	L (15 mm)
Engine Removal/Installation				
Engine Mounting Bracket Bolts	72	7.3	53	L
Engine Mounting Bolt	72	7.3	53	L
Engine Mounting Nut	100	10	74	
Crankshaft/Transmission				
Connecting Rod Big End Cap Nuts	34.3	3.5	25	MO
Engine Oil Drain Bolt	20	2.0	15	

PERIODIC MAINTENANCE 2-7

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Crankcase Bolts (M8) 75 mm (2.95 in.)	20	2.0	15	S
Crankcase Bolts (M8) 110 mm (4.33 in.)	20	2.0	15	S
Crankcase Bolt (M8) 110 mm (4.33 in.)	20	2.0	15	S, L
Crankcase Bolts (M6) 40 mm (1.57 in.)	9.8	1.0	87 in·lb	
Crankcase Bolts (M6) 65 mm (2.56 in.)	9.8	1.0	87 in·lb	
Bearing Position Plate Screws	4.9	0.50	43 in·lb	L
Rear Cylinder Camshaft Chain Guide Bolt	20	2.0	15	
Grip Holder Nut	9.8	1.0	87 in·lb	
Shift Lever Assembly Bracket Bolts	19.6	2.0	14	
Tie-rod End Front Locknut	9.8	1.0	87 in·lb	Lh
Tie-Rod End Rear Locknut	9.8	1.0	87 in·lb	
Tie-rod End Nut	19.6	2.0	14	
Shift Lever Assembly Nut	19.6	2.0	14	
Shift Lever Clamp Bolt	13.5	1.4	119 in·lb	
Tie-rod End Bolt	9.8	1.0	87 in·lb	
Shift Shaft Positioning Bolt	25	2.5	18	
Shift Shaft Spring Bolt	25	2.5	18	L
Shift Shaft Cover Bolts	8.8	0.90	78 in·lb	
Tie-rod End Locknut	19.6	2.0	14	
Neutral Position Switch	15	1.5	11	
Reverse Position Switch	15	1.5	11	
Shift Lever Guide Mounting Nut	19.6	2.0	14	
Wheel/Tires				
Tie-rod Locknuts	37	3.8	27	
Wheel Nuts (First Torque)	15	1.5	11	S
Wheel Nuts (Final Torque)	76	7.7	56	S
Front Axle Nuts	197	20	145	
Rear Axle Nuts	265	27	195	
Final Drive				
(Output Bevel Gears)				
Output Driven Bevel Gear Housing Bolts	26	2.7	20	
Output Drive Bevel Gear Housing Bolts	26	2.7	20	
Bearing Holder	137	14	101	L
Bevel Gear Holder Nut	157	16	116	L
Bearing Holder	120	12	88	L
Output Shaft Holder Nut	157	16	116	L
Rotor Mounting Bolts	12	1.2	106 in·lb	
Output Drive Bevel Gear Cover Bolts	8.8	0.90	78 in·lb	
Forward/Reverse Detecting Sensor Mounting Bolt	15	1.5	11	
(Front Final Gear Case)				
Variable Differential Control Shift Shaft Lever Bolt	8.8	0.90	78 in·lb	
Front Final Gear Case Left Cover Bolts (M6)	9.8	1.0	87 in·lb	L (4), S
Ring Gear Bolts	57	5.8	42	LB

2.8 PERIODIC MAINTENANCE

Product: 2007 Kawasaki Brute Force 50 4x4i/KVF750 4x4 All Terrain Vehicle Service Repair Workshop Manual

Full Download: <https://www.aresairmanual.com/downloads/2007-kawasaki-brute-force-750-4x4i-kvf750-4x4-all-terrain-vehicle-service-repair-workshop-manual/>

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Front Final Gear Case Center Cover Bolts (M6)	9.8	1.0	87 in·lb	L
Front Final Gear Case Center Cover Bolts (M8)	24	2.4	17	L
Front Final Gear Case Oil Filler Cap	29	3.0	22	
Pinion Gear Bearing Holder Nut	127	13	94	St
Pinion Gear Bearing Holder	137	14	101	L
Front Final Gear Case Coupling Nut	25	2.5	18	
Front Final Gear Case Oil Drain Bolt	15	1.5	11	
2WD/4WD Actuator Mounting Bolts	9.8	1.0	87 in·lb	L, S
Variable Differential Control Cable Locknut	17	1.7	12	
Variable Differential Control Lever Bolt	3.4	0.35	30 in·lb	L
Front Final Gear Case Nuts	59	6.0	43	
(Rear Final Gear Case)				
Rear Final Gear Case Front Cover Bolts	24	2.4	18	
Rear Final Gear Case Gasket Screws	1.25	0.13	11 in·lb	L
Pinion Gear Bearing Holder Nut	157	16	116	L
Pinion Gear Bearing Holder	137	14	101	L
Rear Final Gear Case Right Cover Bolts (M12)	95	9.7	70	L
Rear Final Gear Case Right Cover Bolts (M10)	49	5.0	36	L
Rear Final Gear Case Right Cover Bolts (M8)	24	2.4	18	L
Rear Final Gear Case Oil Filler Cap	29	3.0	22	
Rear Final Gear Case Oil Drain Bolt	15	1.5	11	
Rear Final Gear Case Bracket Bolts	59	6.0	44	
Rear Final Gear Case Nuts	91	9.3	67	
Brakes				
Reservoir Cap Screws	1.5	0.15	13 in·lb	
Front Brake Lever Pivot Bolt	5.9	0.60	52 in·lb	
Front Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in·lb	
Front Brake Master Cylinder Clamp Bolts	8.8	0.90	78 in·lb	S
Front Brake Hose Banjo Bolt	34	3.5	25	
Front Brake Caliper Mounting Bolts	25	2.5	18	
Bleed Valves	7.8	0.80	69 in·lb	
Front Brake Disc Mounting Bolts	37	3.8	27	L
Front Brake Caliper Holder Shaft	17	1.7	12	Si
Front Brake Pad Mounting Bolts	17	1.7	12	
Front Brake Light Switch Mounting Screw	1.2	0.12	11 in·lb	
Rear (Parking) Brake Lever Pivot Bolt	2.2	0.22	19 in·lb	
Rear (Parking) Brake Lever Pivot Nut	3.4	0.35	30 in·lb	
Rear Brake Lock Lever Pivot Screw	2.2	0.22	19 in·lb	L
Variable Differential Control Lever Bolt	3.4	0.35	30 in·lb	L
Rear Final Gear Case Gasket Screws	1.25	0.13	12 in·lb	L
Suspension				
Front Shock Absorber Mounting Nuts	34	3.5	25	
Front Suspension Arm Pivot Nuts	42	4.3	31	

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