

MODEL APPLICATION

Year	Model	Beginning Frame No.
2005	KVF650-D1	JKAVFED1□5B500001 JKAVF650DDB600001
2005	KVF650-E1	JKAVFEE1□5B500001
2006	KVF650D6	JKAVFED1□6B503001 JKAVF650DDB601110
2006	KVF650E6	JKAVFEE1□6B503001
2007	KVF650D7	JKAVFED1□7B515501 JKAVF650DDB602401
2007	KVF650E7	JKAVFEE1□7B505601
2008	KVF650D8	JKAVFED1□8B520300 JKAVF650DDB603400
2008	KVF650E8	JKAVFEE1□8B507500
2009	KVF650D9	JKAVFED1□9B525501 JKAVF650DDB604901
2009	KVF650E9	JKAVFEE1□9B508901
2010	KVF650DA	JKAVFED1□AB528001 JKAVF650DDB607001
2011	KVF650DB	JKAVFED1□BB529001 JKAVF650DDB607301
2012	KVF650DC	JKAVFED1□CB530801
2013	KVF650DD	JKAVFED1□DB532001

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



KAWASAKI HEAVY INDUSTRIES, LTD.
Motorcycle & Engine Company

Part No.99924-1348-09

Printed in Japan



BRUTE FORCE 650 4x4

KVF650 4x4



All Terrain Vehicle Service Manual

Quick Reference Guide

General Information	1
Periodic Maintenance	2
Fuel System	3
Cooling System	4
Engine Top End	5
Converter System	6
Recoil Starter	7
Engine Lubrication System	8
Engine Removal/Installation	9
Crankshaft/Transmission	10
Wheels/Tires	11
Final Drive	12
Brakes	13
Suspension	14
Steering	15
Frame	16
Electrical System	17
Appendix	18

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)		

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 symbols, heed their instructions! Always follow safe operating and maintenance practices.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

This manual contains four more symbols 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

Table of Contents

Before Servicing	1-2
Model Identification.....	1-7
General Specifications.....	1-8
Unit Conversion Table	1-11

1-2 GENERAL INFORMATION

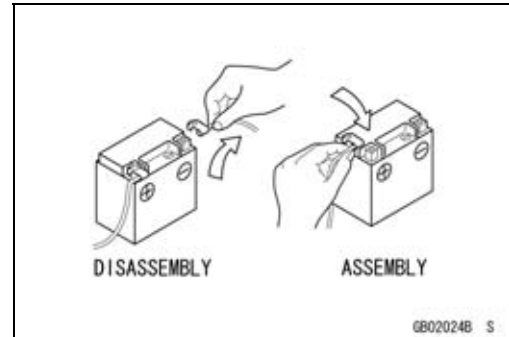
Before Servicing

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:

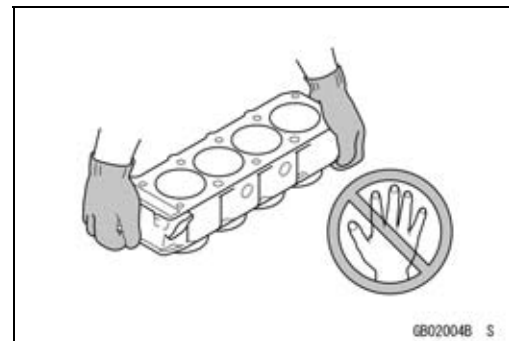
Battery Ground

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 cable (–) first and then the positive (+). When completed with the service, first connect the positive (+) cable to the positive (+) terminal of the battery then the negative (–) cable to the negative terminal.



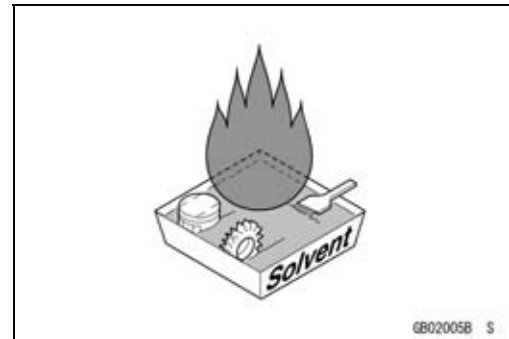
Edges of Parts

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



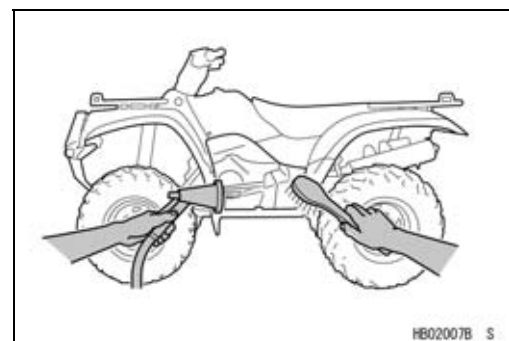
Solvent

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

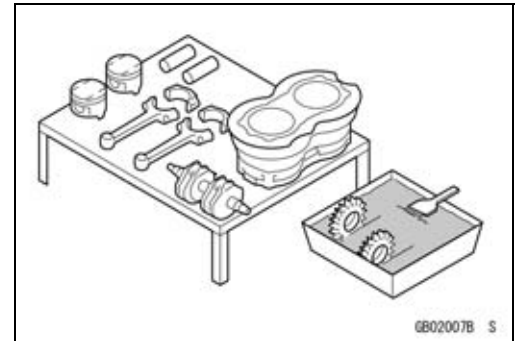
Clean the vehicle thoroughly before disassembly. Dirt or other foreign materials entering into sealed areas during vehicle disassembly can cause excessive wear and decrease performance of the vehicle.



Before Servicing

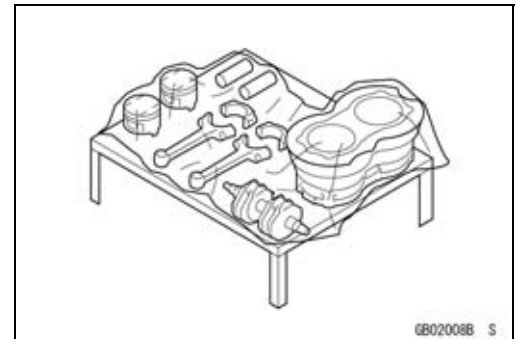
Arrangement and Cleaning of Removed Parts

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.



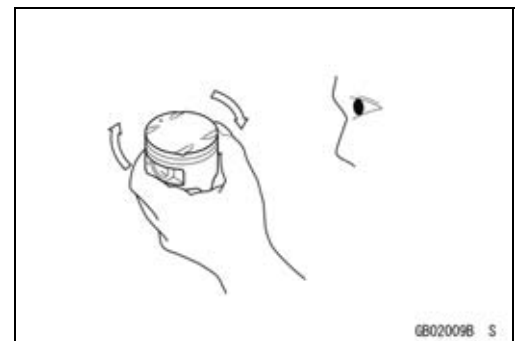
Storage of Removed Parts

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.



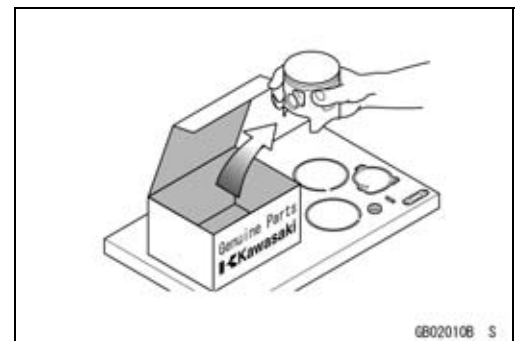
Inspection

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.



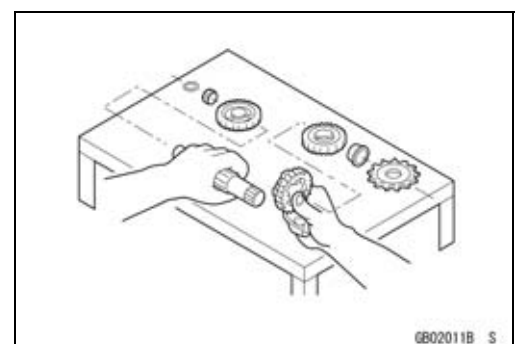
Replacement Parts

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.

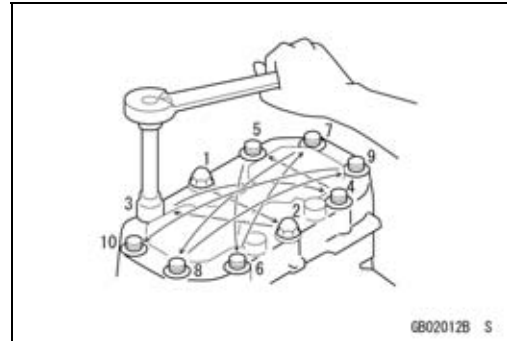


1-4 GENERAL INFORMATION

Before Servicing

Tightening Sequence

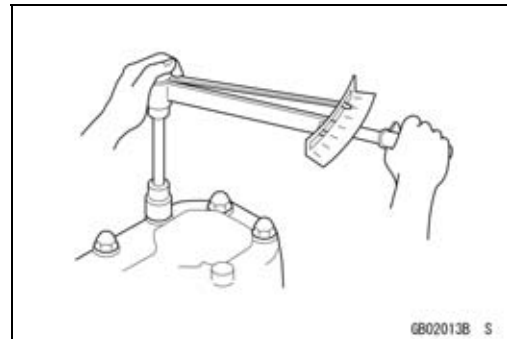
Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them according to the specified sequence to prevent case warpage or deformation which can lead to malfunction. Conversely when loosening the bolts, nuts, or 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

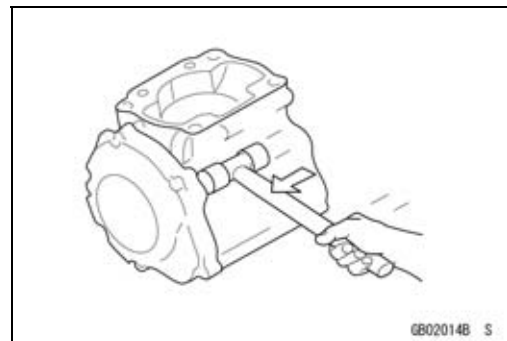
Incorrect torque applied to a bolt, nut, or screw may lead to serious damage. Tighten fasteners to the specified torque using a good quality torque wrench.

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



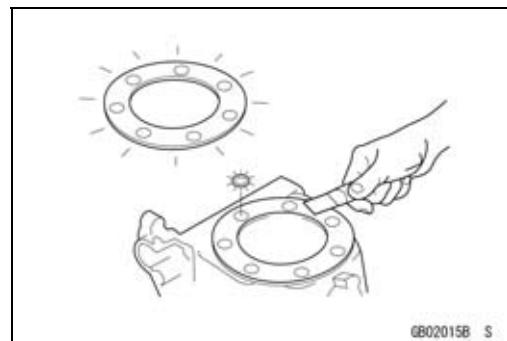
Force

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

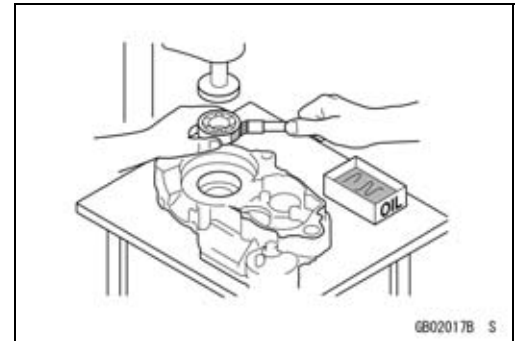
For applications that require Liquid Gasket or a Non-Permanent Locking Agent, clean the surfaces so that no oil residue remains before applying liquid gasket or non-permanent locking agent. Do not apply them excessively. Excessive application can clog oil passages and cause serious damage.



Before Servicing

Press

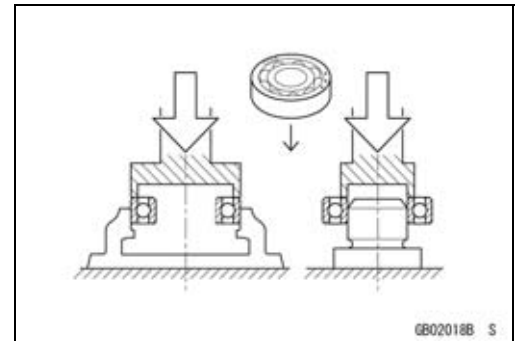
For items such as bearings or oil seals that must be pressed into place, apply small amount of oil to the contact area. Be sure to maintain proper alignment and use smooth movements when installing.



Ball Bearing and Needle Bearing

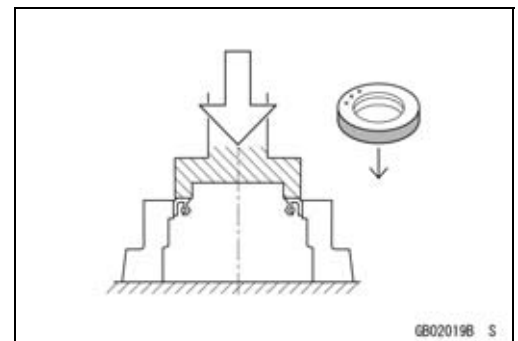
Do not remove pressed ball or needle unless removal is absolutely necessary. Replace with new ones whenever removed. Press bearings with the manufacturer and size marks facing out. Press the bearing into place by putting pressure on the correct bearing race as shown.

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

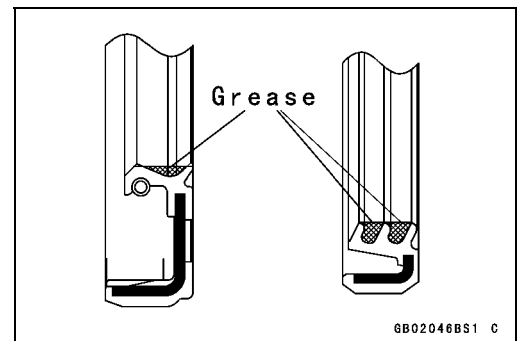


Oil Seal, Grease Seal

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.

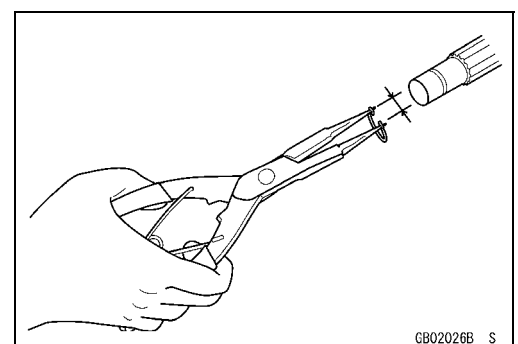


Apply specified grease to the lip of seal before installing the seal.



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.

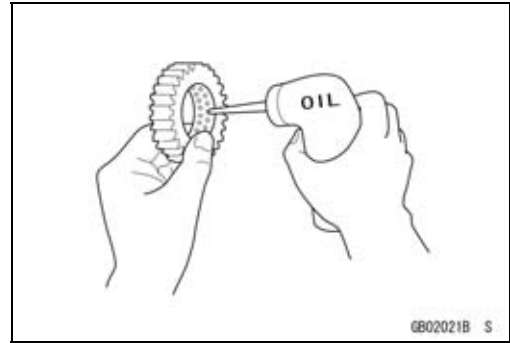


1-6 GENERAL INFORMATION

Before Servicing

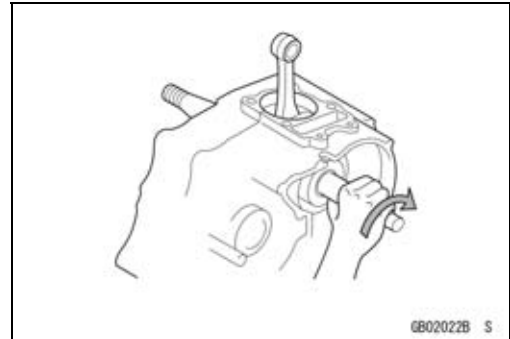
Lubrication

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.



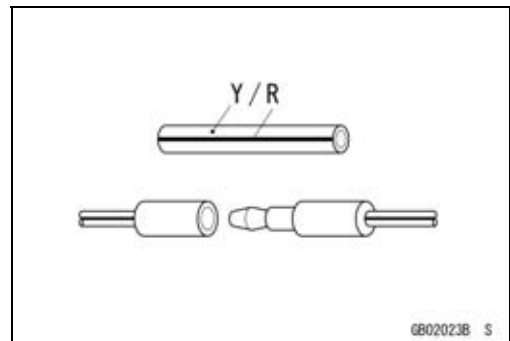
Direction of Engine Rotation

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).



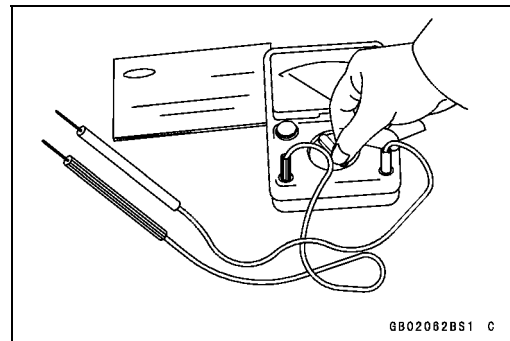
Electrical Wires

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

KVF650-D1 Left Side View



KVF650-D1 Right Side View



The KVF650-E1 is a camouflage-surface-treated model and identical to the KVF650-D1, the base model, in every other aspect: controls, features, and specifications.

1-8 GENERAL INFORMATION

General Specifications

Items	KVF650-D1, E1	KVF650D6 ~ DD, E6 ~ E9
Dimensions		
Overall Length	2 185 mm (86.02 in.)	
Overall Width	1 209 mm (47.60 in.)	(KVF650D6 ~ DB/E6 ~E9) 1 212 mm (47.72 in.) (KVF650DC ~) 1 210 mm (47.63 in.)
Overall Height	1 166 mm (45.91 in.)	(KVF650D6 ~ DB/E6 ~E9) 1 164 mm (45.83 in.) (KVF650DC ~) 1 165 mm (45.87 in.)
Wheelbase	(KVF650D6 ~ DB/E6 ~E9) 1 294 mm (50.94 in.) (KVF650DC ~) 1 295 mm (50.98 in.)	
Ground Clearance:	192 mm (7.56 in.)	185 mm (7.28 in.)
Seat Height	864 mm (34.02 in.)	862 mm (33.94 in.)
Dry Mass	(KVF650-D1/D6 ~ D8 (US, CA, AU)/E1 ~ E8) 273 kg (602 lb) (KVF650D6 ~ D8 (EUR)) 273.5 kg (603 lb)	
Curb Mass:	(KVF650D9 ~ DD (US, CA, AU)/E9) 293 kg (646 lb) (KVF650D9 ~ DB (EUR)) 294 kg (648 lb)	
Front	152 kg (335 lb)	154 kg (339.6 lb) (KVF650D6 ~ D8 (EUR)) 154.2 kg (340 lb) (KVF650D9 ~ DB (EUR)) 155 kg (342 lb)
Rear	141 kg (311 lb)	139 kg (306 lb) (KVF650D6 ~ D8 (EUR)) 139.3 kg (307 lb)
Fuel Tank Capacity	17 L (4.5 US gal)	18 L (4.8 US gal)
Performance		
Minimum Turning Radius	3.1 m (10.17 ft)	
Engine		
Type	4-stroke, SOHC, V-twin	
Cooling System	Liquid-cooled	
Bore and Stroke	80 x 63 mm (3.15 x 2.48 in.)	
Displacement	633 cm ³ (38.6 cu in.)	
Compression Ratio	9.9 : 1	
Maximum Horsepower	30.9 kW (42.0 PS) @6 500 r/min (rpm), (US, CA) –	
Maximum Torque	52.1 N·m (5.3 kgf·m, 38.0 ft·lb) @4 000 r/min (rpm), (US, CA) –	
Carburetion System	Carburetor, Keihin CVKR-D32	
Starting System	Electric Starter & Recoil Starter (KVF650-D1 ~ D9/E1 ~ E9) Electric Starter (KVF650DA ~ DD)	
Ignition System	Digital DC-CDI	
Timing Advance	Electronically advanced	
Ignition Timing	From 5° BTDC @1 100 r/min (rpm) to 28° BTDC @5 000 r/min (rpm)	
Spark Plug	NGK CR7E	
Cylinder Numbering Method	Front to rear, 1-2	
Firing Order	1-2	

General Specifications

Items	KVF650-D1, E1	KVF650D6 ~ DD, E6 ~ E9
Valve Timing: Intake: Open Close Duration Exhaust: Open Close Duration Lubrication System Engine oil: Type Viscosity Capacity	30° BTDC 34° ABDC 244° 54° BBDC 10° ATDC 244° Forced lubrication (wet sump) API SG, SH, SJ, SL or SM with JASO MA, MA1 or MA2 SAE 10W-40 2.05 L (2.17 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 4.028 (16/12 × 18/16 × 29/18 × 20/12) 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) 55.01 ~ 11.19 66.02 ~ 13.43 42.32 ~ 8.61 API SG, SH, SJ, SL or SM with JASO MA, MA1 or MA2 SAE10W-40 0.43 L (0.45 US qt) MOBIL FLUID 424, CITGO TRANSGARD TRACTOR HYDRAULIC FLUID, or EXXON HYDRAUL 560 0.9 L (0.95 US qt)	
Frame Type Caster (Rake Angle)	Double tubular 3.5°	4.5°

1-10 GENERAL INFORMATION

General Specifications

Items	KVF650-D1, E1	KVF650D6 ~ DD, E6 ~ E9
Camber	0°	
King Pin Angle	11°	16°
Trail	15 mm (0.59 in.)	
Tread:		
Front	909 mm (35.79 in.)	910 mm (35.83 in.)
Rear	910 mm (35.83 in.)	909 mm (35.79 in.)
Front tire:		
Type	Tubeless	
Size	AT25 x 8-12	
Rear tire:		
Type	Tubeless	
Size	AT25 x 10-12	
Rim Size:		
Front	12 x 6 AT	
Rear	12 x 7.5 AT	
Suspension:		
Front:		
Type	MacPherson strut	
Wheel Travel	170 mm (6.69 in.)	
Rear:		
Type	Swingarm	
Wheel Travel	184 mm (7.24 in.)	
Brake:		
Front	Disc x 2	
Rear	Enclosed wet multi-plate	
Parking Brake	Enclosed wet multi-plate	
Electrical Equipment		
Battery	12 V 12 Ah	
Headlight:		
Type	Semi-sealed beam	
Bulb	12 V 45/45 W x 2	
Tail/brake Light:		
Bulb	12 V 5/21 W	
Reverse Light:		
Bulb	(EUR) 12V 10W	
Alternator:		
Type	Three - phase AC	
Rated Output	25 A, 14 V @6 000 r/min (rpm)	

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

AU: Australia Model
CA: Canada Model
EUR: Europe Model
US: United States Model

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 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

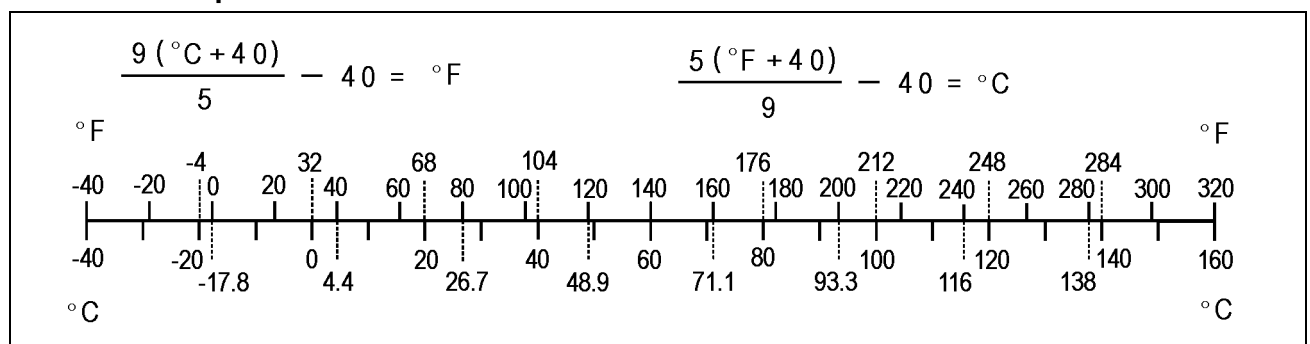
Units of Speed:

km/h	×	0.6214	=	mph
------	---	--------	---	-----

Units of Power:

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

Units of Temperature



Periodic Maintenance

Table of Contents

Periodic Maintenance Chart	2-2	Drive Belt Failure Detection System Inspection.....	2-28
Torque and Locking Agent.....	2-4	Wheels/Tires.....	2-30
Specifications	2-11	Tire Inspection	2-30
Special Tools	2-13	Joint Boots Inspection.....	2-30
Periodic Maintenance Procedures.....	2-14	Front Axle/Steering Knuckle Joint Boot Inspection	2-30
Fuel System.....	2-14	Front Propeller Shaft Boot Inspection.....	2-31
Throttle Lever Free Play Inspection.....	2-14	Rear Propeller Shaft Joint Boot Inspection.....	2-31
Throttle Lever Free Play Adjustment	2-14	Tie-Rod End Boot Inspection	2-31
Choke Lever Free Play Inspection.....	2-14	Final Drive.....	2-31
Choke Lever Free Play Adjustment	2-15	Variable Differential Control Lever Play Inspection.....	2-31
Idle Speed Inspection	2-15	Variable Differential Control Lever Play Adjustment	2-32
Idle Speed Adjustment.....	2-16	Front Final Gear Case Oil Change.....	2-32
Fuel System Cleanliness Inspection.....	2-16	Rear Final Gear Case Oil Change	2-33
Air Cleaner Element Cleaning and Inspection.....	2-17	Brakes.....	2-34
Air Cleaner Draining.....	2-17	Brake Fluid Level Inspection.....	2-34
Fuel Hose and Connection Inspection.....	2-18	Brake Fluid Change	2-34
Fuel Hose Replacement	2-18	Front Brake Master Cylinder Piston Assembly and Dust Cover Replacement	2-35
Cooling System.....	2-19	Front Brake Caliper Fluid Seal Replacement.....	2-35
Coolant Change	2-19	Front Brake Caliper Dust Seal Replacement.....	2-36
Radiator Cleaning	2-21	Front Brake Pad Wear Inspection	2-36
Radiator Hose and Connection Inspection.....	2-22	Front Brake Hoses and Connections Inspection.....	2-36
Coolant Filter Cleaning	2-22	Front Brake Hose Replacement... ..	2-36
Engine Top End	2-22	Rear Brake Lever Free Play Inspection.....	2-37
Valve Clearance Inspection	2-22	Rear Brake Pedal Free Play Inspection.....	2-37
Valve Clearance Adjustment.....	2-24	Rear Brake Lever and Pedal Free Play Adjustment	2-37
Spark Arrester Cleaning.....	2-24	Rear Brake Plates Replacement.. ..	2-37
Converter System.....	2-24	Steering	2-38
Actuator Lever (Engine Brake Control Lever) Assembly Inspection.....	2-24	Steering Inspection	2-38
Converter Drive Belt Deflection Inspection.....	2-25	Switches	2-38
Converter Drive Belt Deflection Adjustment	2-25	Brake Light Switch Inspection.....	2-38
Converter Drive Belt Wear Inspection.....	2-26	Brake Light Timing Adjustment	2-38
Engine Lubrication System	2-27	General Lubrication	2-39
Engine Oil Change.....	2-27	Lubrication	2-39
Oil Filter Replacement	2-28	Bolts and Nuts Tightening.....	2-40
Electrical System	2-28	Tightness Inspection	2-40
Spark Plug Cleaning/Inspection... ..	2-28		
Spark Plug Gap Inspection	2-28		

2-2 PERIODIC MAINTENANCE

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						
Throttle lever play-inspect	●	●				2-14
Choke lever play-inspect	●	●				2-14
Idle speed-inspect			●			2-15
Fuel system cleanliness-inspect *	●			●		2-16
Air cleaner-inspect *	●	●				2-17
Fuel hoses and connections-inspect				●		2-18
Fuel hose-replace	5 years					2-18
Coolant-change*	2 years					2-19
Radiator-clean*	●	●				2-21
Radiator hoses and connections-inspect*					●	2-22
Coolant filter of carburetor-clean					●	2-22
Valve clearance-inspect	First 1 700 km (1 100 mi); thereafter every 3 400 km (2 200 mi)					2-22
Spark arrester-clean					●	2-24
Engine brake control lever-inspect *				●		2-24
Converter drive belt deflection-inspect *				●		2-25
Converter drive belt wear-inspect *				●		2-26
Engine oil-change *	●			●		2-27
Oil filter-replace *	●			●		2-28
Spark plug cleaning and gap-inspect	●			●		2-28
Drive belt failure detection system function-inspect *				●		2-28
CHASSIS						
Tire wear-inspect *			●			2-30
Joint boots-inspect *	●	●				2-30
Differential control lever play-inspect	●	●				2-31
Front and rear final gear case oil-change	●				●	2-32 2-33
Front brake fluid level-inspect	●		●			2-34

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 brake fluid-change					●	2-34
Front brake master cylinder piston assembly and dust cover-replace	2 years					2-35
Front brake caliper fluid seal and dust seal-replace	2 years					2-35 2-36
Front brake pad wear-inspect *	●		●			2-36
Front brake hoses and connections-inspect				●		2-36
Front brake hose-replace	4 years					2-36
Rear brake pedal and lever play-inspect *	●	●				2-37
Rear brake plates-replace *	every 10 000 km (6 000 mi.)					2-37
Steering-inspect	●			●		2-38
Brake light switch-inspect *	●		●			2-38
General lubrication *			●			2-39
Bolts and nuts-tighten	●	●				2-40

*: 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.

2-4 PERIODIC MAINTENANCE

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:

AL: Tighten the two clamp bolts alternately two times to ensure even tightening torque.

L: Apply a non-permanent locking agent.

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

Lh: Left-hand Threads

LN: Apply a non-permanent locking agent (High Strength: Loctite 271 Equivalent).

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 (Liquid Gasket, TB1211: 56019-120).

St: Stake the fasteners to prevent loosening.

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Fuel System				
Throttle Limiter Screw	3.7	0.38	33 in·lb	
Throttle Limiter Locknut	3.7	0.38	33 in·lb	
Throttle Case Assembly Screws	3.7	0.38	33 in·lb	
Choke Lever Mounting Screw	3.5	0.36	31 in·lb	
Left Handlebar Switches Assembly Screws	3.5	0.36	31 in·lb	
Heat Guard Plate Mounting Bolts	8.8	0.90	78 in·lb	
Air Cleaner Housing Bolts (M5)	5.9	0.60	52 in·lb	L
Air Cleaner Housing Bolts (M6) 28.7 mm (1.13 in.)	8.8	0.90	78 in·lb	
Air Cleaner Housing Bolts (M6) 33 mm (1.30 in.)	8.8	0.90	78 in·lb	
Fuel Pump Mounting Nuts (On and after KVF650D6/E6)	8.0	0.80	71 in·lb	
Fuel Pump Bracket Bolts (On and after KVF650D6/E6)	8.0	0.80	71 in·lb	
Fuel Tap Plate Screws	0.8	0.08	7 in·lb	
Fuel Tap Plate Screws (On and after KVF650D6/E6)	5.0	0.50	44 in·lb	
Air Cleaner Element Bracket Screws	5.0	0.50	44 in·lb	
Cooling System				
Radiator Fan Switch (KVF650-D1 ~ DA/E1 ~ E9)	18	1.8	13	
Radiator Fan Switch (KVF650DB ~)	23	2.3	17	
Water Pump Cover Bolts	8.8	0.90	78 in·lb	
Coolant Drain Plug	8.8	0.90	78 in·lb	
Water Pump Fitting Bolt	9.8	1.0	87 in·lb	
Water Pump Impeller	7.9	0.80	69 in·lb	
Thermostat Housing Cover Bolts	8.8	0.90	78 in·lb	
Coolant Temperature Warning Light Switch	6.9	0.70	61 in·lb	SS
Radiator Fan Mounting Nut	2.7	0.28	24 in·lb	L
Radiator Fan Assembly Bolts	8.8	0.90	78 in·lb	
Radiator Mounting Bolts	8.8	0.90	78 in·lb	
Engine Top End				
Water Pipe Bolts	9.8	1.0	87 in·lb	
Rocker Case Bolts 55 mm (2.2 in.)	8.8	0.90	78 in·lb	S

Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
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 Bolt (M10), Final Torque	49	5.0	36	S
Cylinder Head Bolts (M6)	9.8	1.0	87 in-lb	
Cylinder Head Jacket Plugs	20	2.0	14	L
Valve Adjusting Cap Bolts	8.8	0.90	78 in-lb	
Valve Adjusting Screw Locknuts	12	1.2	104 in-lb	
Rocker Shaft Plugs	20	2.0	14 in-lb	
Chain Tensioner Mounting Bolts	8.8	0.90	78 in-lb	
Chain Tensioner Cap Bolt	22	2.2	16	
Intermediate Shaft Chain Guide Bolts	8.8	0.90	78 in-lb	
Intermediate Shaft Chain Tensioner Bolts	8.8	0.90	78 in-lb	
Camshaft Sprocket Bolts	12	1.2	104 in-lb	L
Position Plate Bolts	8.8	0.90	78 in-lb	
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	14	
Rear Cylinder Camshaft Chain Guide Bolt	20	2.0	14	
Coolant Drain Plugs (Cylinder)	7.0	0.70	62 in-lb	
Exhaust Pipe Cover Bolts	8.8	0.90	78 in-lb	
Muffler Cover Bolts	8.8	0.90	78 in-lb	
Muffler Mounting Bolts	20	2.0	14	L
Heat Guard Plate Mounting Bolts	8.8	0.90	78 in-lb	
Muffler Clamp Bolt	8.8	0.90	78 in-lb	
Converter System				
Drive Pulley Bolt	93	9.5	69	R, Lh
Driven Pulley Nut	93	9.5	69	
Drive Pulley Cover Bolts	13	1.3	113 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
Joint Duct Bolts	8.8	0.90	78 in-lb	
Engine Brake Actuator Mounting Bolts	8.8	0.90	78 in-lb	
Recoil Starter				
Recoil Starter Mounting Bolts	5.9	0.60	52 in-lb	L
Engine Lubrication System				
Oil Filter	18	1.8	13	R
Oil Pressure Switch	15	1.5	11	SS
Oil Pipe Bolts	8.8	0.90	78 in-lb	
Engine Drain Plug	20	2.0	14	
Oil Pressure Relief Valve	15	1.5	11	L

2-6 PERIODIC MAINTENANCE

Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Oil Pump Cover Bolts	8.8	0.90	78 in-lb	L (15 mm)
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	
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in-lb	
Engine Removal/Installation				
Engine Mounting Bracket Bolts	32	3.3	24	
Engine Mounting Bolt	62	6.3	46	
Engine Mounting Nut	62	6.3	46	
Crankshaft/Transmission				
Connecting Rod Big End Cap Nuts	34.3	3.50	25.3	MO
Engine Drain Plug	20	2.0	14	
Crankcase Bolts (M8) 75 mm (2.95 in.)	20	2.0	14	S
Crankcase Bolts (M8) 110 mm (4.33 in.)	20	2.0	14	S, L(1)
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
Grip Hold Nut	9.8	1.0	87 in-lb	
Shift Lever Assembly Bracket Bolts	20	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	20	2.0	14	
Shift Lever Assembly Nut	20	2.0	14	
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	LB
Shift Shaft Cover Bolts	8.8	0.90	78 in-lb	
Tie-Rod End Locknut	20	2.0	14	
Neutral Position Switch	15	1.5	11	
Reverse Position Switch	15	1.5	11	
Wheel/Tires				
Tie-Rod Adjusting Sleeve Locknuts	27	2.8	20	Lh (2)
Wheel Nuts	78	8.0	58	
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	250	25.5	184	L
Bevel Gear Holder Nut	200	20.4	148	L
Bearing Holder	118	12	87	L
Output Shaft Holder Nut	200	20.4	148	L

Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Rotor Mounting Bolts	12	1.2	104 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
Front Final Gear Case Center Cover Bolts (M6)	9.8	1.0	87 in-lb	L, S
Oil Filler Cap	29	3.0	22	
Front Final Gear Case Center Cover Bolts (M8)	24	2.4	17	L, S
Pinion Gear Bearing Holder Nut	127	13	94	St
Pinion Gear Bearing Holder	137	14	101	LN
Front Final Gear Case Coupling Nut	25	2.5	18	
Oil Drain Plug	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 Bolts and Nuts	59	6.0	43	
(Rear Final Gear Case)				
Oil Filler Cap	29	3.0	22	
Oil Drain Plug	20	2.0	14	
Pinion Gear Bearing Holder	137	14	101	LB
Pinion Gear Bearing Holder Nut	157	16	116	L
Rear Final Gear Case Right Cover Bolts (M8)	24	2.4	17	L
Rear Final Gear Case Right Cover Bolts (M10)	49	5.0	36	L
Rear Final Gear Case Right Cover Bolts (M12)	93	9.5	69	L
Rear Final Gear Case Left Cover Bolts	49	5.0	36	L
Rear Final Gear Case Bolts	42	4.3	31	S
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	
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 Light Switch Mounting Screw	1.2	0.12	10 in-lb	
Variable Differential Control Lever Bolt	3.4	0.35	30 in-lb	L
Gasket Screws	–	–	–	L
Rear (Parking) Brake Lever Pivot Bolt	2.4	0.24	21 in-lb	
Rear Brake Lever Lock Screw	2.4	0.24	21 in-lb	

2-8 PERIODIC MAINTENANCE

Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Suspension				
Suspension Arm Pivot Bolts	88	9.0	65	
Front Shock Absorber Mounting Nuts	74	7.5	54	
Front Shock Absorber Clamp Bolts and Nuts	42	4.3	31	AL
Steering Knuckle Joint Nut (KVF650-D1/E1)	42	4.3	31	
Steering Knuckle Joint Nut (On and after KVF650-D6/E6)	29	3.0	21	
Rear Shock Absorber Spring Locknut	88	9.0	65	
Rear Shock Absorber Mounting Nuts	62	6.3	46	
Swingarm Pivot Right Shaft	152	15.5	112	L
Swingarm Pivot Left Shaft	20	2.0	14	
Swingarm Pivot Left Nut	152	15.5	112	
Steering				
Handlebar Holder Bolts	29	3.0	22	S
Tie-Rod Adjusting Sleeve Locknuts	27	2.8	20	Lh (2)
Tie-Rod End Nuts	42	4.3	31	
Steering Stem Clamp Bolts	25	2.5	18	
Steering Stem Bottom End Nut	64	6.5	47	
Front Brake Master Cylinder Clamp Bolts	11	1.1	95 in-lb	
Front Shock Absorber Clamp Nuts	42	4.3	31	AL
Steering Knuckle Joint Nut (KVF650-D1/E1)	42	4.3	31	
Steering Knuckle Joint Nut (On and after KVF650D6/E6)	29	3.0	21	
Throttle Case Assembly Screws	3.7	0.38	33 in-lb	
Left Handlebar Switches Assembly Screws	3.5	0.36	31 in-lb	
Frame				
Trailer Hitch Bracket Bolts (M8)	24	2.4	17	L
Trailer Hitch Bracket Bolts (M10)	49	5.0	36	L
Front Guard Bolts	29	3.0	22	
Front Carrier Bolts	32	3.3	24	
Rear Carrier Lower Bolts	54	5.5	40	
Rear Carrier Upper Bolts and Nuts	32	3.3	24	
Engine Mounting Bracket Bolts	32	3.3	24	
Engine Mounting Nuts	62	6.3	46	
Front Final Gear Case Bolts and Nuts	59	6.0	43	
Electrical System				
Starter Motor Mounting Bolts	8.8	0.90	78 in-lb	
Starter Motor Terminal Nut	4.9	0.50	43 in-lb	
Starter Motor Terminal Locknut	6.9	0.70	61 in-lb	
Starter Motor Bolts	4.9	5.0	43 in-lb	
Starter Motor Clutch Bolts	34	3.5	25	L
Alternator Stator Bolts	13	1.3	113 in-lb	
Crankshaft Sensor Mounting Bolts	5.9	0.60	52 in-lb	

Torque and Locking Agent

Fastener	Torque			Remarks	
	N·m	kgf·m	ft·lb		
Alternator Cover Plugs	18	1.8	13	L,S	
Alternator Rotor Bolt	127	13	94		
Alternator Cover Bolts	8.8	0.90	78 in·lb		
Starter Motor Terminal Locknut	11	1.1	97 in·lb		
Starter Motor Through Bolts	5.0	0.51	44 in·lb		
Alternator Outer Cover Bolts (KVF650DA ~)	5.9	0.60	52 in·lb		
Spark Plugs	13	1.3	113 in·lb		
2WD/4WD Actuator Mounting Bolts	8.8	0.90	78 in·lb		
Engine Brake Actuator Mounting Bolts	8.8	0.90	78 in·lb		
Forward/Reverse Detecting Sensor Mounting Bolt	15	1.5	11		
Speed Sensor Mounting Bolt	8.8	0.90	78 in·lb		
Neutral Position Switch	15	1.5	11		
Reverse Position Switch	15	1.5	11		
Radiator Fan Switch (KVF650-D1 ~ DA/E1 ~ E9)	18	1.8	13		
Radiator Fan Switch (KVF650DB ~)	23	2.3	17		
Coolant Temperature Warning Light Switch	6.9	0.70	61 in·lb		SS
Oil Pressure Switch	15	1.5	11		SS
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in·lb		

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

Basic Torque for General Fasteners of Engine Parts

Threads dia. mm	Mark of bolt head	Torque		
		N·m	kgf·m	ft·lb
5	4T	2.2 ~ 2.6	0.22 ~ 0.27	19 ~ 23 in·lb
6	9T	12 ~ 15	1.2 ~ 1.5	104 ~ 130 in·lb
6	7T	7.8 ~ 9.8	0.8 ~ 1.0	69 ~ 87 in·lb
6	4T	3.9 ~ 4.9	0.4 ~ 0.5	35 ~ 43 in·lb
8	7T	18 ~ 22	1.8 ~ 2.2	13 ~ 16
8	4T	10 ~ 14	1.0 ~ 1.4	87 ~ 122 in·lb
10	7T	39 ~ 44	4.0 ~ 4.5	29 ~ 33
10	4T	20 ~ 24	2.0 ~ 2.4	14 ~ 17

2-10 PERIODIC MAINTENANCE

Torque and Locking Agent

Basic Torque for General Fasteners of Frame Parts

Threads dia. mm	Torque		
	N·m	kgf·m	ft·lb
5	3.4 ~ 4.9	0.35 ~ 0.5	30 ~ 43 in·lb
6	5.9 ~ 7.8	0.6 ~ 0.8	52 ~ 69 in·lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Specifications

Item	Standard	Service Limit
Fuel System		
Throttle Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	— — —
Choke Lever Free Play	About 3 mm (0.12 in.)	— — —
Idle Speed	1 100 ±50 r/min (rpm)	— — —
Air Cleaner Element Oil	High-quality foam air filter oil	— — —
Cooling System		
Coolant:		
Type (Recommended)	Permanent type antifreeze	— — —
Color	Green	— — —
Mixed Ratio	Soft water 50%, Coolant 50%	— — —
Freezing Point	−35°C (−31°F)	— — —
Total Amount	2.4 L (2.5 US qt.)	— — —
Engine Top End		
Valve Clearance:		
Exhaust	0.20 ~ 0.25 mm (0.0079 ~ 0.0098 in.)	— — —
Intake	0.10 ~ 0.15 mm (0.0039 ~ 0.0059 in.)	— — —
Converter System		
Actuator Lever Guide Shoe Wear	— — —	6 mm (0.24 in.)
Belt Width	29.7 ~ 30.3 mm (1.169 ~ 1.193 in.)	28.0 mm (1.102 in.)
Belt Deflection	22 ~ 27 mm (0.87 ~ 1.06 in.)	— — —
Engine Lubrication System		
Engine Oil:		
Type	API SG, SH, SJ, SL or SM with JASO MA, MA1 or MA2	— — —
Capacity	1.54 L (1.63 US qt) (When filter is not removed)	— — —
	1.75 L (1.85 US qt) (When filter is removed)	— — —
	2.05 L (2.17 US qt) (When engine is completely dry)	— — —
Wheels/Tires		
Tire Tread Depth:		
Front	— — —	3 mm (0.12 in.)
Rear	— — —	4 mm (0.16 in.)
Standard Tire:		
Front	AT 25 × 8-12 DUNLOP, KT121A, Tubeless DURO, DI-K211A, Tubeless	— — —
Rear	AT 25 × 10-12 DUNLOP, KT127A, Tubeless DURO, DI-K721A, Tubeless	— — —

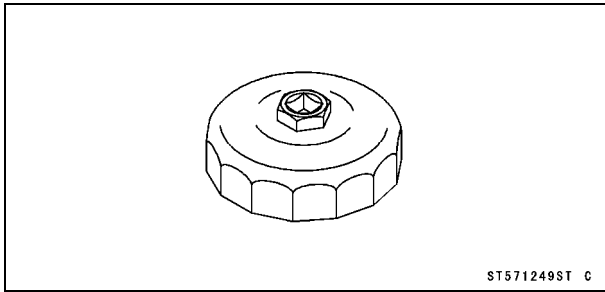
2-12 PERIODIC MAINTENANCE

Specifications

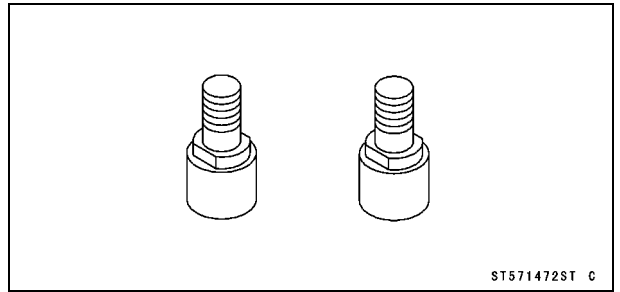
Item	Standard	Service Limit
Final Drive		
Front Final Gear Case Oil:		
Gear Oil (Same engine oil)		
Type	API SG, SH, SJ, SL or SM with JASO MA, MA1 or MA2	---
Viscosity	SAE 10W-40	---
Oil Level	Filler opening bottom	---
Capacity	0.43 L (0.45 US qt)	---
Rear Final Gear Case Oil:		
Gear Oil:		
Type	MOBIL Fluid 424, CITGO TRANSGARD TRACTOR HYDRAULIC FLUID or EXXON HYDRAUL 560	---
Oil Level	Filler opening bottom	---
Capacity	0.9 L (0.95 US qt)	---
Brakes		
Front Brake Fluid:		
Type	DOT 3 or DOT 4	---
Front Disc Brake:		
Pad Lining Thickness	4 mm (0.16 in.)	1 mm (0.04 in.)
Rear Brake Lever, Pedal and Cables:		
Rear Brake Lever Free Play	1 ~ 2 mm (0.04 ~ 0.08 in.)	---
Brake Pedal Free Play	15 ~ 25 mm (0.6 ~ 1.0 in.)	---
Electrical System		
Spark Plug Gap	0.7 ~ 0.8 mm (0.028 ~ 0.031 in.)	---
Rear Brake Light Switch Timing	ON after 10 mm (0.4 in.) of pedal travel	---

Special Tools

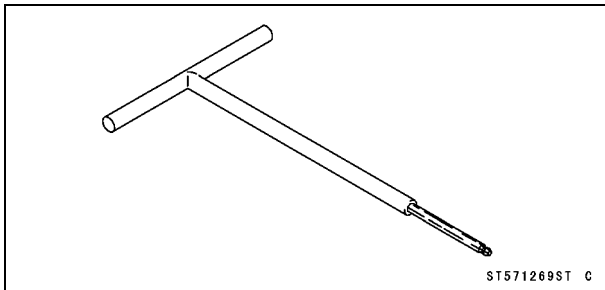
Oil Filter Wrench:
57001-1249



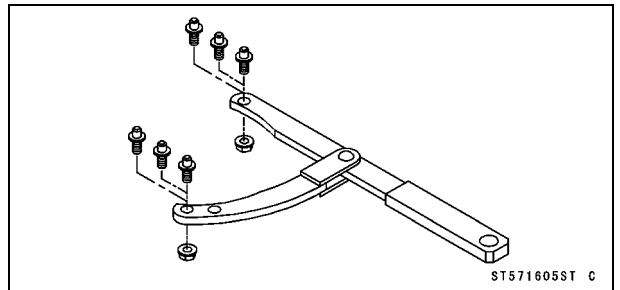
Pulley Holder Attachment:
57001-1472



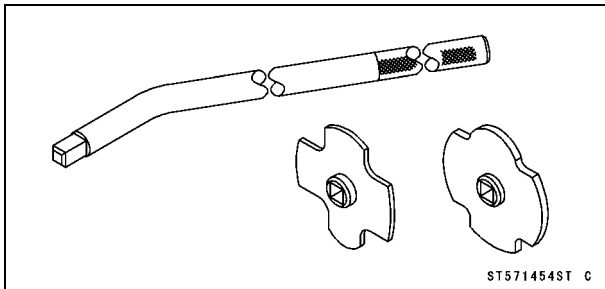
Carburetor Drain Plug Wrench, Hex 3:
57001-1269



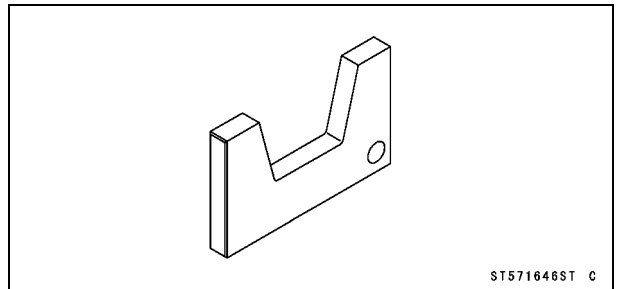
Flywheel & Pulley Holder:
57001-1605



Filler Cap Driver:
57001-1454



Belt Measuring Gauge:
57001-1646



2-14 PERIODIC MAINTENANCE

Periodic Maintenance Procedures

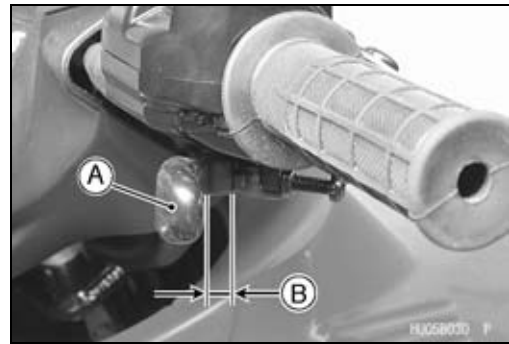
Fuel System

Throttle Lever Free Play Inspection

- Check that the throttle lever [A] moves smoothly from full open to close, and the throttle closes quickly and completely in all steering positions by the return spring.
- ★ If the throttle lever does not return properly, check the throttle cable routing, lever free play, and cable damage. Then lubricate the throttle cable.
- Run the engine at the idle speed, and turn the handlebar all the way to the right and left to ensure that the idle speed does not change.
- ★ If the idle speed increases, check the throttle lever free play and the cable routing.
- Stop the engine and check the throttle lever free play [B].
- ★ If the free play is not within the specified range, adjust the cable.

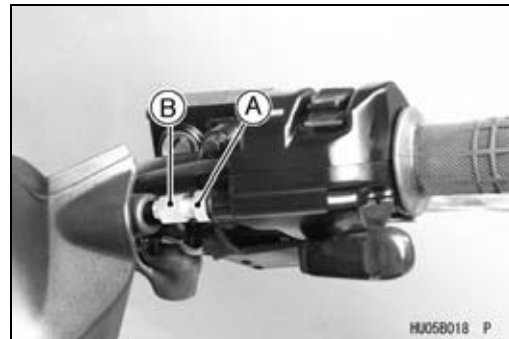
Throttle Lever Free Play

Standard: 2 ~ 3 mm (0.08 ~ 0.12 in.)



Throttle Lever Free Play Adjustment

- Remove the handle cover (see Multifunction Meter Unit Removal in the Electrical System chapter).
- Slide the rubber cover off the adjuster at the throttle case.
- Loosen the locknut [A] and turn the throttle cable upper adjuster [B] until the cable has proper amount of play.
- Tighten the locknut and reinstall the rubber cover.



- ★ If the free play cannot be adjusted by using the upper cable adjuster, remove the air cleaner housing and then use the cable adjusting nuts [A] at the lower end of the throttle cable and make the necessary free play.

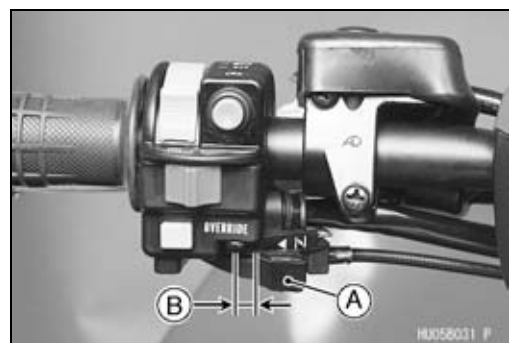


Choke Lever Free Play Inspection

- Check if the choke lever [A] returns properly and if the inner cable slides smoothly.
- Make sure that the choke lever returns to its released position all the way.
- To determine the amount of choke cable play at the lever, pull the choke lever to the left until feeling the operation of the lever tough; the amount of choke lever is equivalent to that of cable play.
- The proper amount of play ranges about 3 mm (0.12 in.) at the choke lever.
- ★ If the free play is not within the specified range, adjust the cable.

Choke Lever Free Play [B]

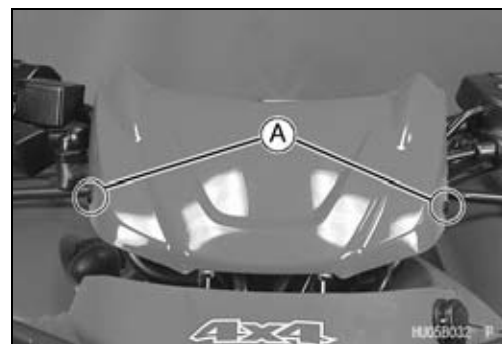
Standard: about 3 mm (0.12 in.)



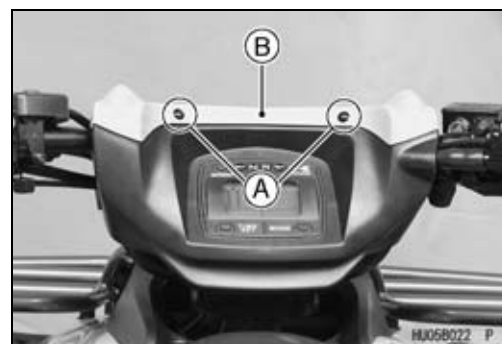
Periodic Maintenance Procedures

Choke Lever Free Play Adjustment

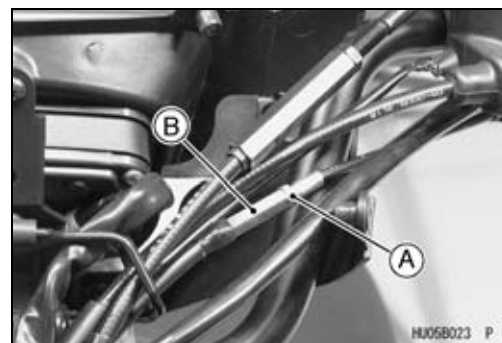
- Remove:
Handlebar Cover Screws [A]



- Remove:
Handlebar Cover Screws [A]
Handlebar Cover Front [B]



- Loosen the locknut [A] of the choke cable.
- Turn the adjuster [B] until the cable has proper amount of play.
- Tighten the locknut securely.



Idle Speed Inspection

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

⚠ WARNING

Operation with improperly adjusted, incorrectly routed or damaged cables could result in an unsafe riding condition. Follow the service manual to be make sure to correct any of these conditions.

- Check idle speed with a suitable tachometer.
- ★ If the idle speed is out of the specified range, adjust it.

Idle Speed

Standard: 1 100 ±50 r/min (rpm)



Download the full PDF manual instantly.

Our customer service e-mail:

aservicemanualpdf@yahoo.com