

MODEL APPLICATION

Year	Model	Beginning Frame No.
2003	KVF360-B1	JKBVFHB1□3B500001 or JKBVF360BBB600001
2004	KVF360-B2	JKBVFHB1□4B505201 or JKBVF360BBB601801
2005	KVF360-B3	JKBVFHB1□5B507100 or JKBVF360BBB602500
2006	KVF360B6F	JKBVFHB1□6B510501 or JKBVF360BBB602901
2007	KVF360B7F	JKBVFHB1□7B512801 or JKBVF360BB603601
2008	KVF360B8F	JKBVFHB1□8B514900 or JKBVF360BBB603900
2009	KVF360B9F	JKBVFHB1□9B516601 or JKBVF360BBB604501

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



KAWASAKI HEAVY INDUSTRIES, LTD.
Consumer Products & Machinery Company

Part No.99924-1302-07

Printed in Japan



PRAIRIE 360
KVF 360



All Terrain Vehicle Service Manual

Quick Reference Guide

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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)		

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.

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

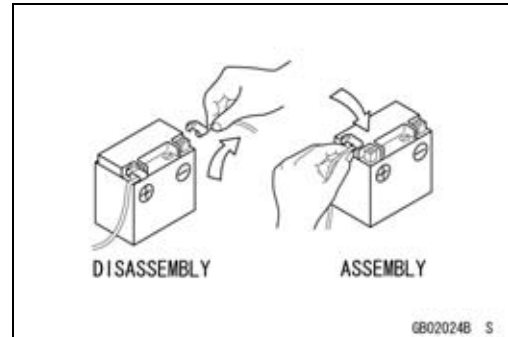
Before Servicing

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:

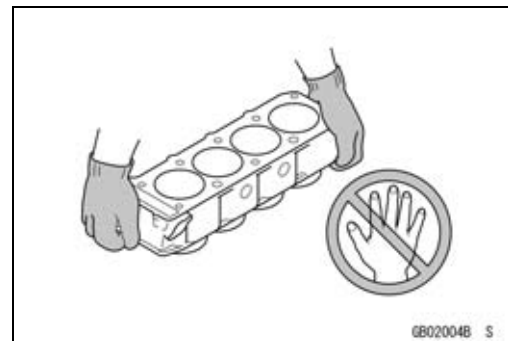
Battery Ground

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



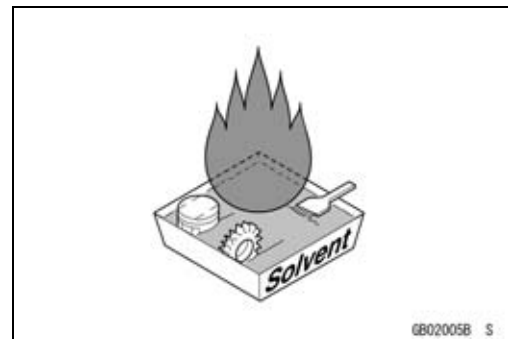
Edges of Parts

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



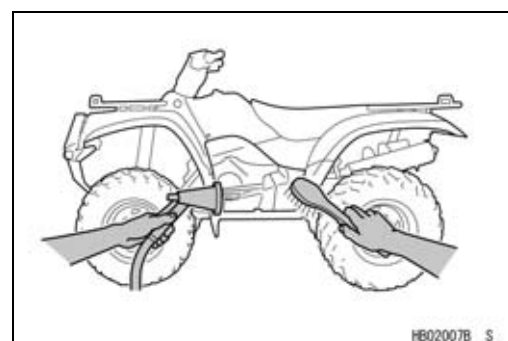
Solvent

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

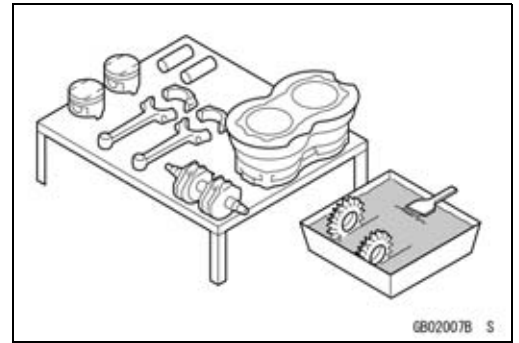
Clean the vehicle thoroughly before disassembly. Dirt or other foreign materials entering into sealed areas during vehicle disassembly can cause excessive wear and decrease performance of the vehicle.



Before Servicing

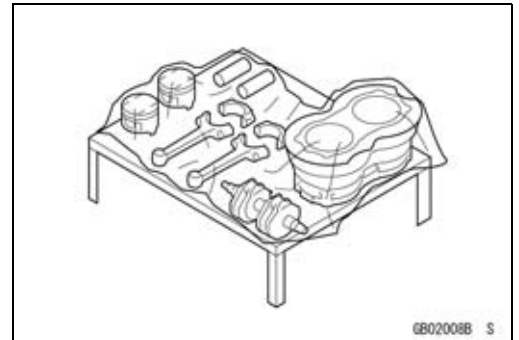
Arrangement and Cleaning of Removed Parts

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.



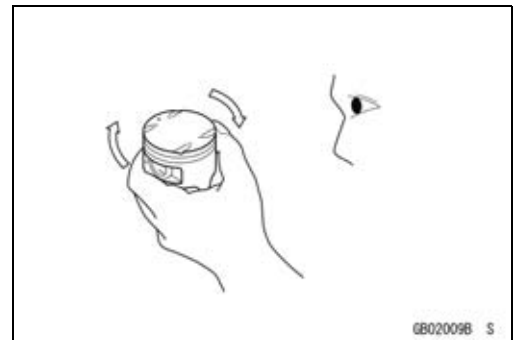
Storage of Removed Parts

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.



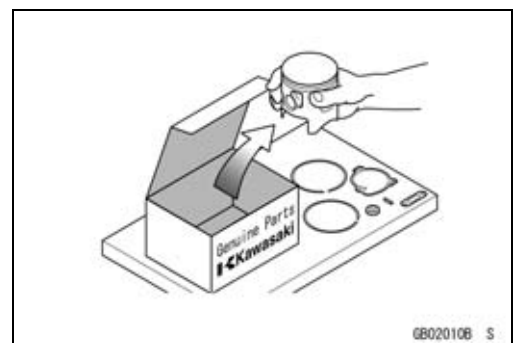
Inspection

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.



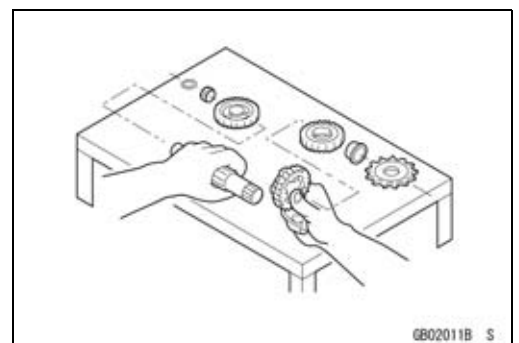
Replacement Parts

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.

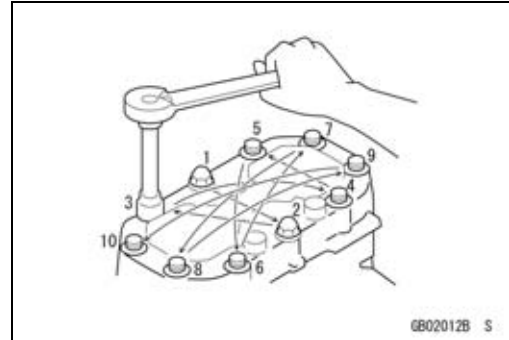


1-4 GENERAL INFORMATION

Before Servicing

Tightening Sequence

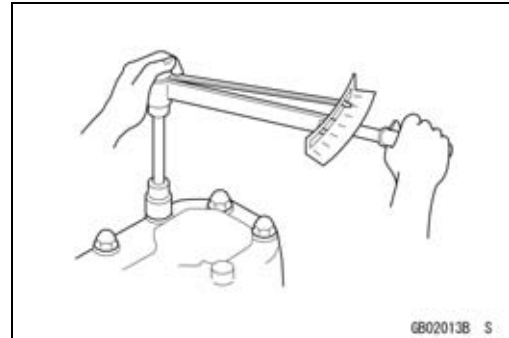
Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them according to the specified sequence to prevent case warpage or deformation which can lead to malfunction. Conversely when loosening the bolts, nuts, or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

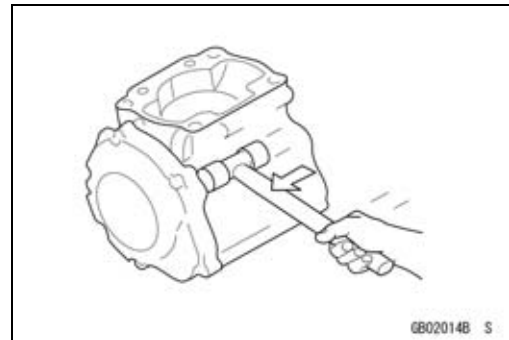
Incorrect torque applied to a bolt, nut, or screw may lead to serious damage. Tighten fasteners to the specified torque using a good quality torque wrench.

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



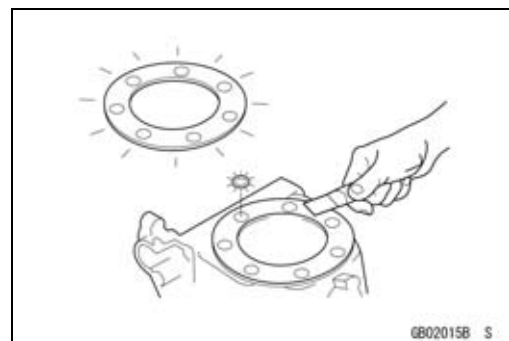
Force

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.



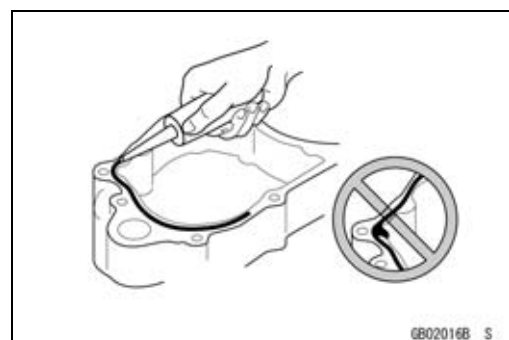
Gasket, O-ring

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

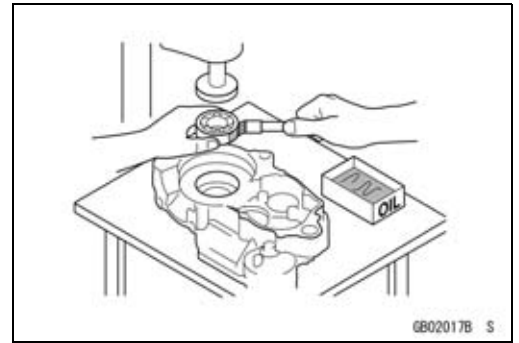
For applications that require Liquid Gasket or a Non-Permanent Locking agent, clean the surfaces so that no oil residue remains before applying liquid gasket or non-permanent locking agent. Do not apply them excessively. Excessive application can clog oil passages and cause serious damage.



Before Servicing

Press

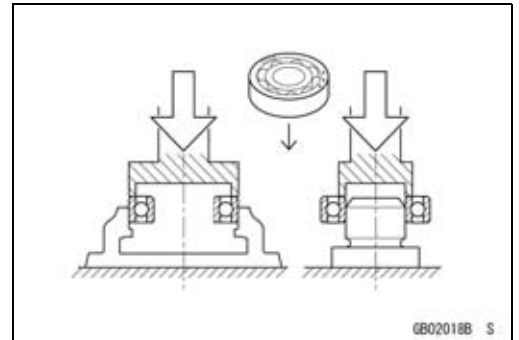
For items such as bearings or oil seals that must be pressed into place, apply small amount of oil to the contact area. Be sure to maintain proper alignment and use smooth movements when installing.



Ball Bearing and Needle Bearing

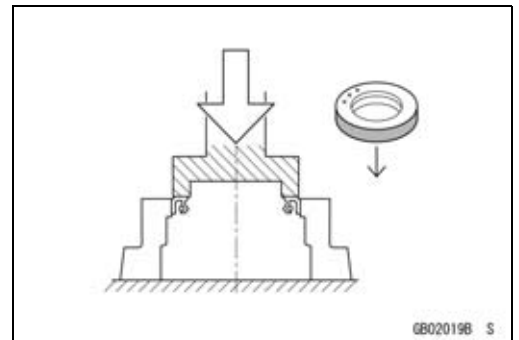
Do not remove pressed ball or needle unless removal is absolutely necessary. Replace with new ones whenever removed. Press bearings with the manufacturer and size marks facing out. Press the bearing into place by putting pressure on the correct bearing race as shown.

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

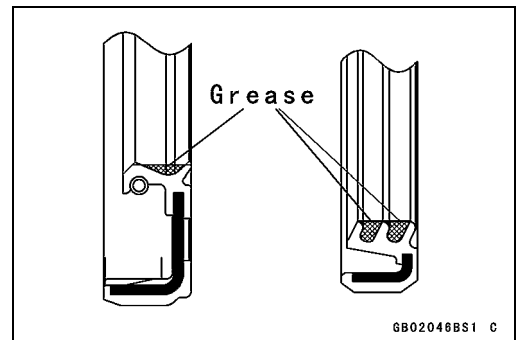


Oil Seal, Grease Seal

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.

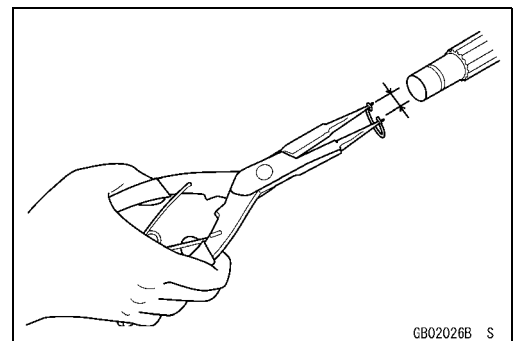


Apply specified grease to the lip of seal before installing the seal.



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.

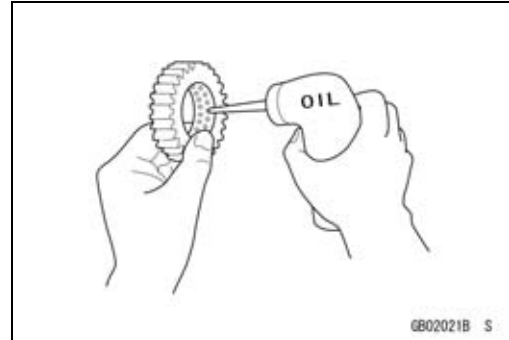


1-6 GENERAL INFORMATION

Before Servicing

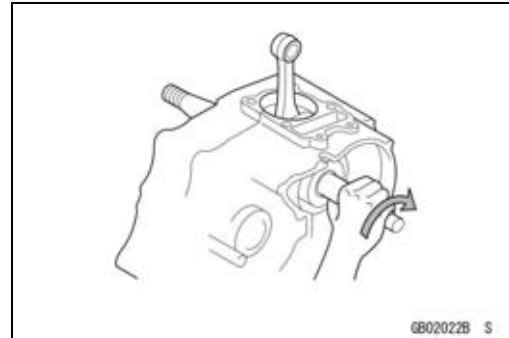
Lubrication

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.



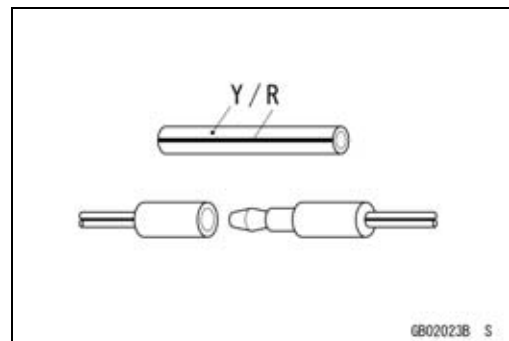
Direction of Engine Rotation

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).



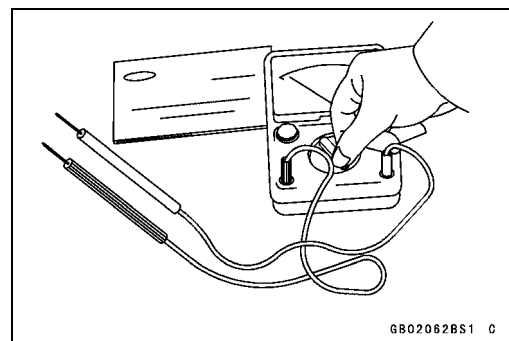
Electrical Leads

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



Instrument

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



Model Identification

KVF360-B1 Left Side View



KVF360-B1 Right Side View



1-8 GENERAL INFORMATION

General Specifications

Items	KVF360-B1 ~ B3	KVF360B6F ~
Dimensions		
Overall Length	2 065 mm (81.30 in.)	
Overall Width	1 205 mm (47.44 in.)	
Overall Height	1 175 mm (46.26 in.)	
Wheelbase	1 255 mm (49.41 in.)	
Ground Clearance:		
Rear Final Gear Case	195 mm (7.68 in.)	
Center of Frame	260 mm (10.23 in.)	
Seat Height	910 mm (35.83 in.)	
Dry Mass	263 kg (580 lb)	263.5 kg (581 lb)
Curb Mass:		
Front	139.5 kg (308 lb)	140 kg (309 lb)
Rear	135.5 kg (299 lb)	
Fuel Tank Capacity	13.5 L (3.6 US gal)	
Performance		
Minimum Turning Radius	3.2 m (10.50 ft)	
Engine		
Type	4-stroke, SOHC, 1-cylinder	
Cooling System	Air-cooled	
Bore and Stroke	80.0 × 72.0 mm (3.15 × 2.83 in.)	
Displacement	362 cm ³ (22.1 cu in.)	
Compression Ratio	8.3 : 1	
Maximum Horsepower	15.7 kW (21.4 PS) @7 000 r/min (rpm), (US) -	
Maximum Torque	26.1 N·m (2.66 kgf·m, 19.25 ft·lb) @4 500 r/min (rpm)	
Carburetion System	Carburetor, Keihin CVK34	
Starting System	Electric Starter & Recoil Starter	
Ignition System	DC-CDI	
Timing Advance	Electronically advanced	
Ignition Timing	From 10° BTDC @1 300 r/min (rpm) to 30° BTDC @5 000 r/min (rpm)	
Spark Plug	NGK DPR8EA-9	
Valve Timing:		
Inlet:		
Open	38° BTDC	
Close	58° ABDC	
Duration	276°	
Exhaust:		
Open	68° BBDC	
Close	28° ATDC	
Duration	276°	
Lubrication System	Forced lubrication (wet sump)	
Engine Oil:		
Grade	API SF or SG API SH, SJ or SL with JASO MA	
Viscosity	SAE 10W-40	

General Specifications

Items	KVF360-B1 ~ B3	KVF360B6F ~
Capacity	2.3 L (2.17 US qt)	
Drive Train		
Primary Reduction System:		
Type	Belt converter	
Reduction Ratio	3.122 ~ 0.635	
Transmission:		
Type	2-speed automatic and reverse	
Gear Ratios:		
Forward:		
High	3.548 (30/26 × 29/18 21/11)	
Low	5.536 (36/20 × 29/18 × 21/11)	
Reverse	4.613 (16/12 × 18/16 × 29/18 × 21/11)	
Final Drive System:		
Type	Shaft	
Reduction Ratio	4.375 (35/8)	
Overall Drive Ratio:		
Forward:		
High	48.474 ~ 9.859	
Low	75.619 ~ 15.380	
Reverse	63.016 ~ 12.817	
Final Gear Case Oil:		
Type	MOBILE Fluid 424 or Kawa Chem Gear & Wet Brake Oil (CITGO TRANSGARD TRACTOR HYDRAULIC FLUID) or Exxon Hydvaul 560	
Capacity	900 mL (0.95 US qt)	
Frame		
Type	Double cradle, tubular steel	
Caster (Rake Angle)	2.5°	
Camber	0.5°	
King Pin Angle	14.5°	
Trail	15 mm (0.59 in.)	
Tread:		
Front	900 mm (35.43 in.)	
Rear	895 mm (35.24 in.)	
Front Tire:		
Type	Tubeless	
Size	AT25 × 8 - 12	
Rear Tire:		
Type	Tubeless	
Size	AT25 × 10 - 12	
Rim Size:		
Front	12 × 6.0	
Rear	12 × 7.5	

1-10 GENERAL INFORMATION

General Specifications

Items	KVF360-B1 ~ B3	KVF360B6F ~
Suspension: Front: Type Wheel Travel Rear: Type Wheel Travel Brake: Front Rear	MacPherson strut 170 mm (6.69 in.) Swingarm 180 mm (7.09 in.) Disc x 2 Enclosed wet multi-plate	
Electrical Equipment Battery Headlight: Type Bulb Brake/Tail Light: Bulb Reverse Light: Bulb Alternator: Type Rated Output	12 V 14 Ah Semi-sealed beam 12 V 30/30 W x 2 12 V 18/5 W (EUR) (GB) 12 V 10 W Three-phase AC 25 A, 14 V @8 000 r/min (rpm)	

General Specifications

Items	KVF360B9F
Dimensions	
Overall Length	2 065 mm (81.30 in.)
Overall Width	1 205 mm (47.44 in.)
Overall Height	1 167 mm (45.94 in.)
Wheelbase	1 253 mm (49.33 in.)
Ground Clearance:	
Rear Final Gear Case	197 mm (7.76 in.)
Center of Frame	252 mm (9.92 in.)
Seat Height	910 mm (35.83 in.)
Curb Mass:	KVF360B9F (US, AU) 276 kg (609 lb)
	KVF360B9F (EUR) 277 kg (611 lb)
Front	KVF360B9F (US, AU) 140 kg (309 lb)
	KVF360B9F (EUR) 141 kg (311 lb)
Rear	136 kg (300 lb)
Fuel Tank Capacity	13.5 L (3.6 US gal)
Performance	
Minimum Turning Radius	3.2 m (10.50 ft)
Engine	
Type	4-stroke, SOHC, 1-cylinder
Cooling System	Air-cooled
Bore and Stroke	80.0 × 72.0 mm (3.15 × 2.83 in.)
Displacement	362 cm ³ (22.1 cu in.)
Compression Ratio	8.3 : 1
Maximum Horsepower	15.7 kW (21.4 PS) @7 000 r/min (rpm), (US) -
Maximum Torque	26.1 N·m (2.66 kgf·m, 19.25 ft·lb) @4 500 r/min (rpm)
Carburetion System	Carburetor, Keihin CVK34
Starting System	Electric Starter & Recoil Starter
Ignition System	DC-CDI
Timing Advance	Electronically advanced
Ignition Timing	From 10° BTDC @1 300 r/min (rpm) to 30° BTDC @5
	000 r/min (rpm)
Spark Plug	NGK DPR8EA-9
Valve Timing:	
Inlet:	
Open	38° BTDC
Close	58° ABDC
Duration	276°
Exhaust:	
Open	68° BBDC
Close	28° ATDC
Duration	276°
Lubrication System	Forced lubrication (wet sump)
Engine Oil:	
Grade	API SF or SG
	API SH, SJ or SL with JASO MA

1-12 GENERAL INFORMATION

General Specifications

Items	KVF360B9F
Viscosity Capacity	SAE 10W-40 2.3 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 Final Gear Case Oil: Type Capacity	Belt converter 3.122 ~ 0.635 2-speed automatic and reverse 3.548 (30/26 × 29/18 21/11) 5.536 (36/20 × 29/18 × 21/11) 4.613 (16/12 × 18/16 × 29/18 × 21/11) Shaft 4.375 (35/8) 48.474 ~ 9.859 75.619 ~ 15.380 63.016 ~ 12.817 MOBILE Fluid 424 or Kawa Chem Gear & Wet Brake Oil (CITGO TRANSGARD TRACTOR HYDRAULIC FLUID) or Exxon Hydvaul 560 900 mL (0.95 US qt)
Frame Type Caster (Rake Angle) Camber King Pin Angle Trail Tread: Front Rear Front Tire: Type Size Rear Tire: Type Size Rim Size: Front Rear	Double cradle, tubular steel 3.1° 0.2° 14° 18 mm (0.71 in.) 905 mm (35.63 in.) 895 mm (35.24 in.) Tubeless AT25 × 8 - 12 Tubeless AT25 × 10 - 12 12 × 6.0 12 × 7.5

General Specifications

Items	KVF360B9F
Suspension: Front: Type Wheel Travel Rear: Type Wheel Travel Brake: Front Rear	 MacPherson strut 170 mm (6.69 in.) Swingarm 180 mm (7.09 in.) Disc x 2 Enclosed wet multi-plate
Electrical Equipment Battery Headlight: Type Bulb Brake/Tail Light: Bulb Reverse Light: Bulb Alternator: Type Rated Output	12 V 14 Ah Semi-sealed beam 12 V 30/30 W x 2 12 V 18/5 W (EUR) (GB) 12 V 10 W Three-phase AC 25 A, 14 V @8 000 r/min (rpm)

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

EUR: Europe Model

GB: United Kingdom Model

US: United States Model

1-14 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 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
cm Hg	×	1.333	=	kPa

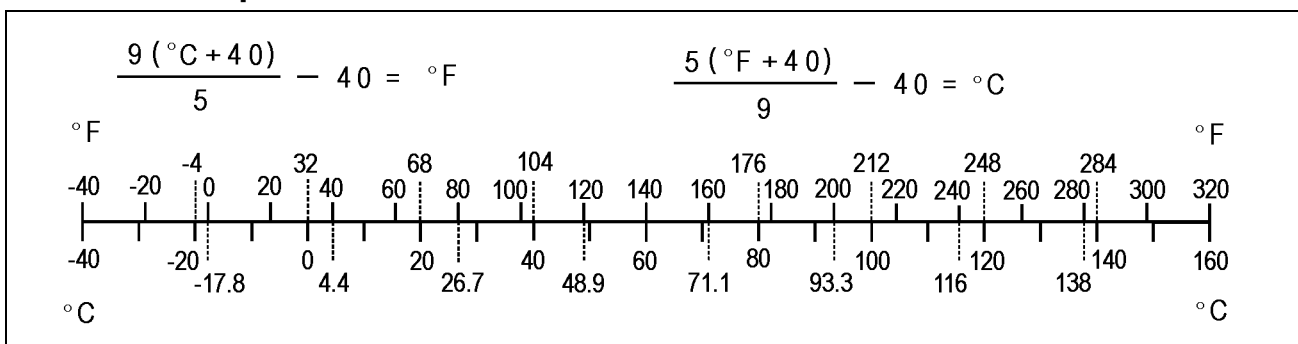
Units of Speed:

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

Units of Temperature:



Periodic Maintenance

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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				See Page
	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.) or 100 hrs of use, whichever comes first	Every year of use	
OPERATION						
ENGINE						
Converter drive belt wear - inspect*				●		2-18
Converter drive belt deflection - inspect*				●		2-19
Actuator lever (Engine brake control lever) - inspect*				●		2-18
Air cleaner - inspect*	●	●				2-14
Throttle lever play - inspect	●	●				2-12
Idle speed - inspect			●			2-12
Valve clearance - inspect	●			●		2-16
Fuel system cleanliness - inspect*	●			●		2-13
Engine oil - change*	●			●		2-21
Oil filter - replace*	●			●		2-21
Spark plug - clean and gap	●			●		2-29
Spark arrester - clean					●	2-17
Oil cooler cleanliness - inspect*	●	●				2-22
Oil hoses and connections - inspect*					●	2-22
Fuel hoses and connections - inspect				●		2-15
Fuel hose - replace			4 years			2-15
CHASSIS						
Propeller shaft joint boot - inspect*	●	●				2-24
Rear brake pedal and lever play - inspect*	●	●				2-28
Rear brake plates - change*	every 10 000 km (6 000 mi.)					2-27
Bolts and nuts - tighten	●	●				2-31
Front brake pad wear - inspect*	●		●			2-24
Brake light switch - inspect*	●		●			2-30
Battery - inspect	●		●			2-29
Steering - inspect	●			●		2-29
Tire wear - inspect*			●			2-23
Final gear case oil - change	●				●	2-23
General lubrication*			●			2-30
Front brake fluid level - inspect	●		●			2-25
Front brake fluid - change					●	2-25

PERIODIC MAINTENANCE 2-3

Periodic Maintenance Chart

FREQUENCY	First Service	Regular Service				See Page
	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.) or 100 hrs of use, whichever comes first	Every year of use	
OPERATION						
Front brake master cylinder piston assembly and dust seal - replace	2 years					2-27
Front brake caliper fluid seal and dust seal - replace	2 years					2-27
Front brake hoses and connections- inspect				●		2-24
Front brake hose - replace	4 years					2-24

*: 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:

EO: Apply engine oil.

L: Apply a non-permanent locking agent.

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

M: Apply molybdenum disulfide grease.

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

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

Lh: Left-hand Threads

R: Replacement Parts

S: Follow the specific tightening sequence.

St: Stake the fasteners to prevent loosening.

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Fuel System				
Throttle Cable Locknut	1.3	0.13	11 in-lb	
Air Cleaner Duct Front Clamp Screw	1.4	0.14	12 in-lb	
Air Cleaner Duct Rear Clamp Screw	4	0.41	36 in-lb	
Air Cleaner Housing Mounting Bolts	6.9	0.70	61 in-lb	
Air Cleaner Intake Duct Clamp Screws	1.4	0.14	12 in-lb	
Engine Top End				
Valve Adjusting Cap Bolts	8.8	0.90	78 in-lb	
Cylinder Head Bolts (M11), first torque	25	2.5	18	MO, S
Cylinder Head Bolts (M11), final torque	44	4.5	33	S
Cylinder Head Bolts (M6)	12	1.2	104 in-lb	S
Camshaft Cover Bolts	8.8	0.90	78 in-lb	
Engine Breather Plate Screws	4.4	0.45	39 in-lb	
Camshaft Sprocket Bolts	14	1.4	10	L
Bearing Retainer Bolts	12	1.2	104 in-lb	
Rear Camshaft Chain Guide Bolt	9.8	1.0	87 in-lb	
Camshaft Chain Tensioner Mounting Bolts	8.8	0.90	78 in-lb	
Camshaft Chain Guard Bolts	8.8	0.90	78 in-lb	
Valve Adjusting Screw Locknuts (KVF360-B1 ~ B3, B6F)	12	1.2	104 in-lb	(M6)
Valve Adjusting Screw Locknuts (KVF360-B7F)	8.8	0.90	78 in-lb	(M5)
Rocker Shaft Holder Bolts	8.8	0.90	78 in-lb	
Muffler Mounting Bolts	26	2.7	20	
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
Converter Cover Bolts	8.8	0.90	78 in-lb	S
Engine Brake Actuator Mounting Bolts	8.8	0.90	78 in-lb	

PERIODIC MAINTENANCE 2-5

Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Converter Air Duct Bolts	8.8	0.9	78 in-lb	
Recoil Starter				
Recoil Starter Mounting Bolts	5.9	0.60	52 in-lb	L
Engine Lubrication System				
Oil Cooler Mounting Bolts	8.8	0.90	78 in-lb	
Oil Pipe Joint Nuts	29	3.0	22	
Oil Cooler Fan Switch	16	1.6	12	
Oil Temperature Warning Light Switch	16	1.6	12	
Oil Hose Banjo Bolts	29	3.0	22	
Oil Pipe Bolts	8.8	0.90	78 in-lb	
Oil Filter (~ KVF360B8F)	18	1.8	13	R
Oil Filter (KVF360B9F)	17.5	1.8	13	R
Oil Filter Mounting Bolt	25	2.5	18	L
Oil Pressure Relief Valve	15	1.5	11	L
Oil Pressure Switch	15	1.5	11	SS
Oil Pump Cover Bolt	20	2.0	14	
Oil Pump Cover Screws	5.4	0.55	48 in-lb	
Oil Line Plugs	23	2.3	17	L
Engine Oil Drain Plug	20	2.0	14	
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in-lb	
Engine Removal/Installation				
Upper Engine Mounting Bracket Bolt	42	4.3	31	
Lower Engine Mounting Bracket Bolts	25	2.5	18	
Lower Engine Mounting Bolts	42	4.3	31	
Upper Engine Mounting Bolt	25	2.5	18	
Crankshaft/Transmission				
Camshaft Chain Guard Bolts	8.8	0.90	78 in-lb	
Oil Line Plugs	23	2.3	17	L
Engine Oil Drain Plug	20	2.0	14	
Crankcase Bolts (M8)	20	2.0	14	S, L (1)
Crankcase Bolts (M6) (~ KVF360B8F)	8.8	0.90	78 in-lb	
Crankcase Bolts (M6) (KVF360B9F)	9.8	1.0	87 in-lb	
Bearing Position Plate Screws (KVF360-B3 ~)	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 Bolt	9.8	1.0	87 in-lb	
Tie-Rod End Locknut	20	2.0	14	
Shift Lever Assembly Nut	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 Shaft Cover Bolts	8.8	0.90	78 in-lb	
Neutral Switch	15	1.5	11	

2-6 PERIODIC MAINTENANCE

Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Reverse Position Switch	15	1.5	11	
Shift Shaft Positioning Bolt	25	2.5	18	
Shift Shaft Spring Bolt	25	2.5	18	L
Wheels/Tires				
Tire Rod End Nuts	42	4.3	31	
Tie-Rod Adjusting Sleeve Locknuts	37	3.8	27	
Wheel Nuts	52	5.3	38	
Front Axle Nuts	196	20	145	
Rear Axle Nuts	265	27	195	
Final Drive				
(Output Bevel Gears)				
Output Drive Bevel Gear Housing Bolts	26	2.7	20	
Rotor Mounting Bolts	12	1.2	104 in-lb	
Output Drive Bevel Gear Cover Bolts	8.8	0.9	78 in-lb	
Forward/Reverse Detecting Sensor Mounting Bolts	15	1.5	11	
Output Drive Bevel Gear Bearing Holder	118	12	87	L
Bevel Gear Holder Nut	200	20	148	L
Output Driven Bevel Gear Housing Bolts	26	2.7	20	
Output Driven Bevel Gear Bearing Holder	250	26	184	L
Output Shaft Holder Nut	200	20	148	L
(Final Gear Case)				
Oil Filler Cap	29	3.0	22	
Oil Drain Plug	20	2.0	14	
Final Gear Case Bolts	42	4.3	31	S
Pinion Gear Bearing Holder	137	14	101	L
Final Gear Case Left Cover Bolts (M10)	49	5.0	36	L
Final Gear Case Right Cover Bolts (M10)	49	5.0	36	L
Final Gear Case Right Cover Bolts (M8)	24	2.4	17	L
Final Gear Case Right Cover Bolts (M12)	93	9.5	69	L
Pinion Gear Bearing Holder Nut	157	16	116	L
Brakes				
Reservoir Cap Screws	1.5	0.15	13 in-lb	
Bleed Valves	7.8	0.80	69 in-lb	
Master Cylinder Clamp Bolts	8.8	0.90	78 in-lb	
Brake Hose Banjo Bolts	34	3.5	25	
Brake Lever Pivot Bolt	5.9	0.60	52 in-lb	
Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in-lb	
Caliper Mounting Bolts	25	2.5	18	
Caliper Holder Shaft	18	1.8	13	
Caliper Holder Shaft (Allen Bolt)	23	2.3	17	
Pad Mounting Bolts	18	1.8	13	
Disc Mounting Bolts	37	3.8	27	L

PERIODIC MAINTENANCE 2-7

Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Suspension				
Front Shock Absorber Clamp Bolts and Nuts	47	4.8	35	
Front Shock Absorber Mounting Nuts	74	7.5	54	
Rear Shock Absorber Mounting Nuts	62	6.3	46	
Knuckle Joint Mounting Nuts (KVF360B6F ~)	29	30	22	
Piston Rod Nut	49	5.0	36	
Suspension Arm Pivot Bolts	88	9.0	65	
Swingarm Pivot Right Shaft	152	15.5	112	L
Swingarm Pivot Left Shaft	20	2.0	14	L
Swingarm Pivot Left Nut	152	15.5	112	
Steering				
Parking Brake Lever Screw	2.2	0.22	19 in-lb	L
Steering Stem Bottom End Nut	62	6.3	46	
Steering Stem Clamp Bolts	25	2.5	18	
Tie-Rod End Nuts	42	4.3	31	
Steering Knuckle Joint Nuts	42	4.3	31	
Knuckle Joint Mounting Nuts (KVF360B6F ~)	29	30	22	
Front Shock Absorber Clamp Bolts and Nuts	47	4.8	35	
Tie-Rod Adjusting Sleeve Locknuts	37	3.8	27	
Handlebar Lower Holder Nuts	37	3.8	27	L
Handlebar Holder Bolts	27	2.8	20	S
Frame				
Rear Carrier Bolts and Nuts	25	2.5	18	
Front Carrier Bolts	-	-	-	L
Front Guard Bolts	20	2.0	14	
Footboard Mounting Nuts	-	-	-	L
Electrical System				
Alternator Cover Bolts	8.8	0.90	78 in-lb	
Alternator Rotor Bolts	127	13	94	
Alternator Stator Bolts	14	1.4	10	
Spark Plug	14	1.4	10	
Ignition Coil Mounting Bolt	8.8	0.90	78 in-lb	
Crankshaft Sensor Mounting Bolts	5.9	0.60	52 in-lb	
Starter Motor Mounting Bolts	8.8	0.90	78 in-lb	
Starter Motor Terminal Nut (~ KVF360B8F)	4.9	0.5	43 in-lb	
Starter Motor Terminal Nut (KVF360B9F)	6.8	0.69	60 in-lb	
Starter Motor Terminal Locknut (~ KVF360B8F)	6.9	0.7	61 in-lb	
Starter Motor Terminal Locknut (KVF360B9F)	11	1.1	97 in-lb	
Starter Motor Bolts (~ KVF360B8F)	3.4	0.3	30 in-lb	
Starter Motor Bolts (KVF360B9F)	5.0	0.51	44 in-lb	
Starter Motor Clutch Bolts	34	3.5	25	L
Engine Brake Actuator Mounting Bolts	8.8	0.90	78 in-lb	S
Reverse Position Switch	15	1.5	11	

2-8 PERIODIC MAINTENANCE

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Neutral Switch	15	1.5	11	
Starter Relay Terminal Nuts	4.9	0.50	43 in·lb	
Igniter Mounting Bolts	2.3	0.23	20 in·lb	
Ignition Switch Nut	2.7	0.28	24 in·lb	
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in·lb	
Regulator/Rectifier Mounting Bolts	8.8	0.90	78 in·lb	

The tables 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.

Basic Torque for General Fasteners of Engine Parts

Threads dia. mm (in.)	Mark of Bolt Head	Torque		
		N·m	kgf·m	ft·lb
5 (0.20)	4T	2.2 ~ 2.6	0.22 ~ 0.27	19 ~ 23 in·lb
6 (0.24)	9T	12 ~ 15	1.2 ~ 1.5	104 ~ 130 in·lb
6 (0.24)	7T	7.8 ~ 9.8	0.8 ~ 1.0	69 ~ 87 in·lb
6 (0.24)	4T	3.9 ~ 4.9	0.4 ~ 0.5	35 ~ 43 in·lb
8 (0.31)	7T	18 ~ 22	1.8 ~ 2.2	13 ~ 16
8 (0.31)	4T	10 ~ 14	1.0 ~ 1.4	87 ~ 122 in·lb
10 (0.39)	7T	39 ~ 44	4.0 ~ 4.5	29 ~ 33
10 (0.39)	4T	20 ~ 24	2.0 ~ 2.4	14 ~ 17

Basic Torque for General Fasteners of Frame Parts

Threads dia. mm (in.)	Torque		
	N·m	kgf·m	ft·lb
5 (0.20)	3.4 ~ 4.9	0.35 ~ 0.5	30 ~ 43 in·lb
6 (0.24)	5.9 ~ 7.8	0.6 ~ 0.8	52 ~ 69 in·lb
8 (0.31)	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10 (0.39)	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12 (0.47)	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14 (0.55)	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16 (0.63)	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18 (0.71)	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20 (0.79)	225 ~ 325	23 ~ 33	165 ~ 240

PERIODIC MAINTENANCE 2-9

Specifications

Item	Standard	Service Limit
Fuel System		
Throttle Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	- - -
Air Cleaner Element Oil	High-quality foam air filter oil	- - -
Engine Top End		
Valve Clearance:		
Exhaust	0.15 ~ 0.20 mm (0.0059 ~ 0.0079 in.)	- - -
Inlet	0.08 ~ 0.13 mm (0.0032 ~ 0.0051 in.)	- - -
Converter System		
Actuator Lever Guide Shoe Wear	- - -	6 mm (0.24 in.)
Belt Width		
(KVF360-B1 ~ B2)	29.9 ~ 31.1 mm (1.18 ~ 1.22 in.)	29.4 mm (1.16 in.)
(KVF360-B3 ~)	29.7 ~ 30.3 mm (1.17 ~ 1.19 in.)	28.0 mm (1.10 in.)
Belt Deflection	22 ~ 27 mm (0.87 ~ 1.06 in.)	- - -
Engine Lubrication System		
Engine Oil:		
Type	API SF or SG API SH, SJ or SL with JASO MA	- - - - - -
Viscosity	SAE10W-40	- - -
Capacity	1.50 L (1.59 US qt) (When filter is not removed)	- - -
	1.74 L (1.84 US qt) (When filter is removed)	- - -
	2.3 L (2.43 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 x 8-12 Dunlop, KT121, Tubeless	- - - - - -
Rear	AT 25 x 10-12 Dunlop, KT405C/KT127A, Tubeless	- - - - - -
Final Drive		
Final Gear Case:		
Gear Case Oil:		
Type	MOBIL Fluid 424 or Kawa Chem Gear & Wet Brake Oil (CITGO TRANSGARD TRACTOR HYDRAULIC FLUID) or Exxon Hydraul 560	- - -
Oil Level	Filler opening bottom	- - -
Capacity	900 mL (0.95 US qt)	- - -

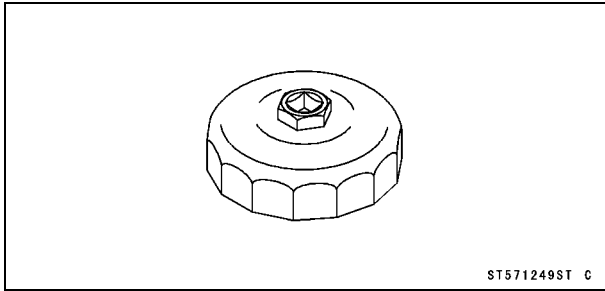
2-10 PERIODIC MAINTENANCE

Specifications

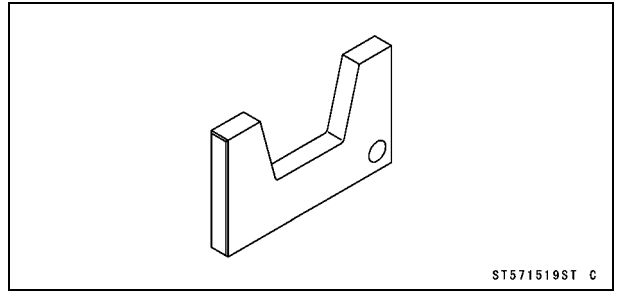
Item	Standard	Service Limit
Brakes		
Front Brake Fluid: Grade	DOT 3 or DOT 4	---
Front Disc Brake: Pad lining Thickness	4.5 mm (0.18 in.)	1 mm (0.04 in.)
Rear Brake Lever, Pedal and Cables:		
Rear Brake Lever Free Play	1 ~ 2 mm (0.04 ~ 0.08 in.)	---
Brake Pedal Free Play	15 ~ 25 mm (0.6 ~ 1.0 in.)	---
Electrical System		
Spark Plug Gap	0.8 ~ 0.9 mm (0.031 ~ 0.035 in.)	---
Rear Brake Light Switch Timing	On after 10 mm (0.4 in.) of pedal travel	---

Special Tools

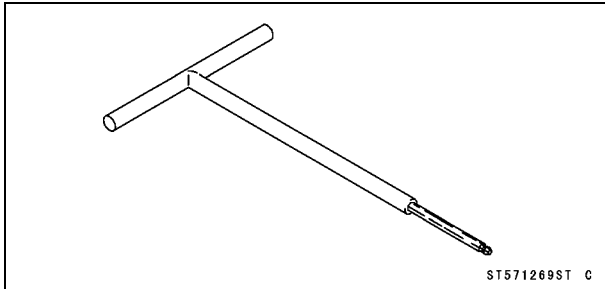
Oil Filter Wrench:
57001-1249



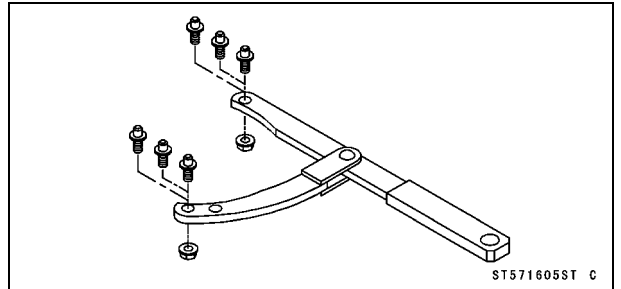
Belt Measuring Gauge:
57001-1519



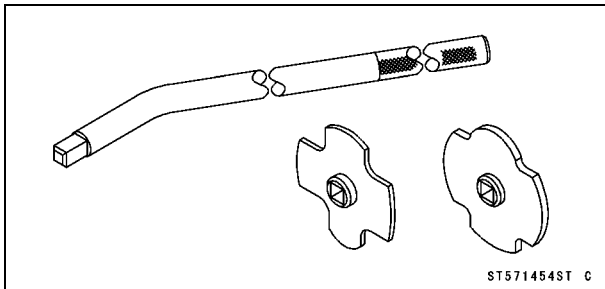
Carburetor Drain Plug Wrench, Hex 3:
57001-1269



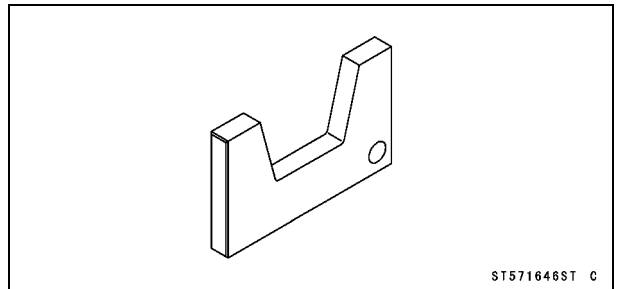
Flywheel & Pulley Holder:
57001-1605



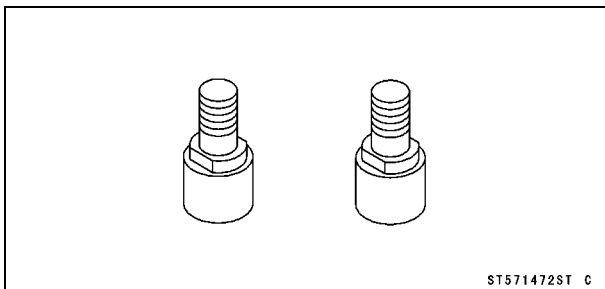
Filler Cap Driver:
57001-1454



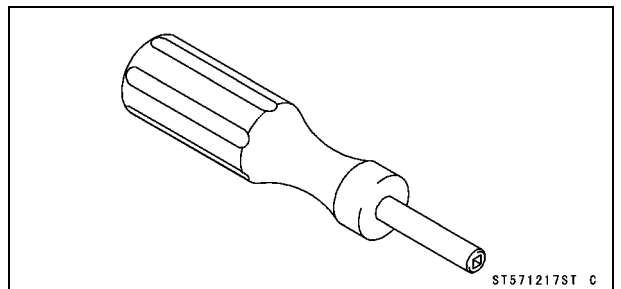
Belt Measuring Gauge:
57001-1646



Pulley Holder Attachment:
57001-1472



Valve Adjusting Screw Holder:
57001-1217



2-12 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 possible 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].

Throttle Lever Free Play

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

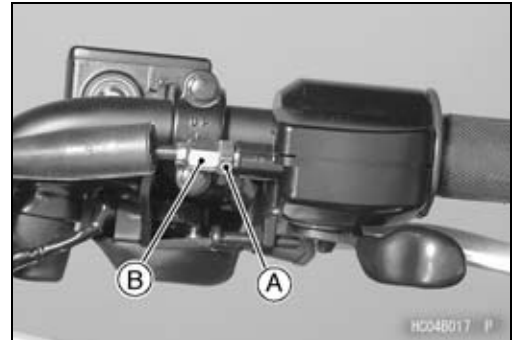
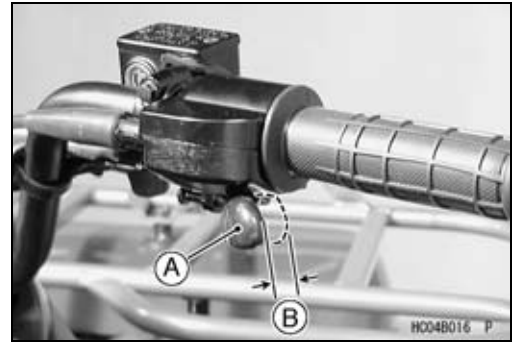
- ★ If the free play is not within the specified range, adjust the cable.

Throttle Lever Free Play Adjustment

- 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.

Torque - Throttle Cable Locknut: 1.3 N·m (0.13 kgf·m, 11 in·lb)

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



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.

Periodic Maintenance Procedures

★ 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.

- Check idle speed with a suitable tachometer.

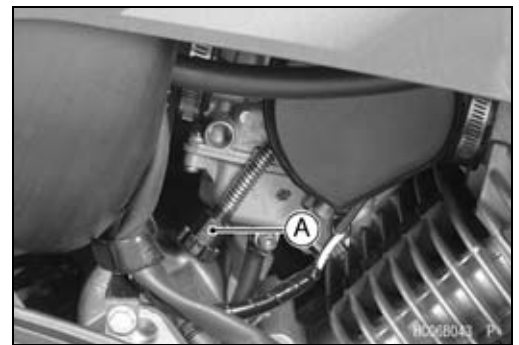
Idle Speed

Standard: 1 300 ± 50 r/min (rpm)

★ If the idle speed is out of the specified range, adjust it.

Idle Speed Adjustment

- Start the engine and warm it up thoroughly.
- Turn the idle adjusting screw [A] until the idle speed is correct.
- Open and close the throttle a few times to make sure that the idle speed is within the specified range.



Fuel System Cleanliness Inspection

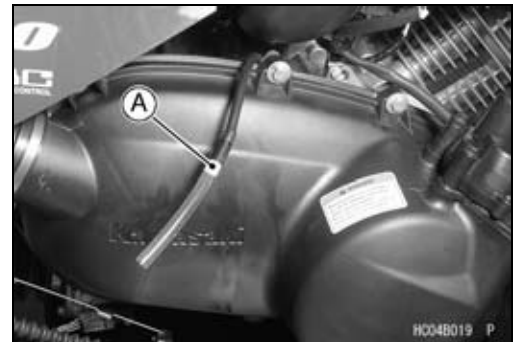
⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. 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 check valve [A] at the end of the carburetor overflow hose.
- Run the lower end of the carburetor overflow hose to a suitable container.
- Turn out the carburetor drain plug a few turns and drain the fuel system.

Special Tool - Carburetor Drain Plug Wrench, Hex 3: 57001-1269 [A]

- Check to see if water or dirt comes out.
- Tighten the drain plug.
- ★ If any water or dirt appears during the above inspection, clean the fuel system (carburetor, tank, fuel hose).





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