

MODEL APPLICATION

Year	Model	Beginning Frame No.
2003	KX125-M1	JKAKXRMC□3A000001 or JKAKX125MMA000001
2003	KX250-M1	JKAKXMMC□3A000001 or JKAKX250MMA000001
2004	KX125-M2	JKAKXRMC□4A010001 or JKAKX125MMA010001
2004	KX250-M2	JKAKXMMC□4A010001 or JKAKX250MMA010001
2005	KX125-M3	JKAKXRMC□5A016001 or JKAKX125MMA016001
2006	KX125M6F	JKAKXRMC□6A021001 or JKAKX125MMA021001
2007	KX125M7F	JKAKXRMC□7A025001 or JKAKX125MMA025001
2008	KX125M8F	JKAKXRMC□8A 027001 or JKAKX125MMA027001

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



KAWASAKI HEAVY INDUSTRIES, LTD.
Consumer Products & Machinery Company

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KX125
KX250



Motorcycle Service Manual

Quick Reference Guide

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LIST OF ABBREVIATIONS

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

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 as to 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.

To get the longest life out of your motorcycle:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki motorcycle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki Motorcycles are introduced by the 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 motorcycle, 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:

(1) Dirt

Before removal and disassembly, clean the motorcycle. Any dirt entering the engine will shorten the life of the motorcycle. For the same reason, before installing a new part, clean off any dust or metal filings.

(2) Battery Ground

Disconnect the ground (–) cable from the battery before performing any disassembly operations on the motorcycle. This prevents the engine from accidentally turning over while work is being carried out, sparks from being generated while disconnecting the leads from electrical parts, as well as damage to the electrical parts themselves. For reinstallation, first connect the positive cable to the positive (+) terminal of the battery

(3) Installation, Assembly

Generally, installation or assembly is the reverse of removal or disassembly. However, if installation or assembly sequence is given in this Service Manual, follow it. Note parts locations and cable, wire, and hose routing during removal or disassembly so they can be installed or assembled in the same way. It is preferable to mark and record the locations and routing whenever possible.

(4) Tightening Sequence

When installing bolts, nuts, or screws for which a tightening sequence is given in this Service Manual, make sure to follow the sequence. When installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit, thus ensuring that the part has been installed in its proper location. Then, tighten them to the specified torque in the tightening sequence and method indicated. If tightening sequence instructions are not given, tighten them evenly in a cross pattern. Conversely, to remove a part, first loosen all the bolts, nuts, or screws that are retaining the part a 1/4-turn before removing them.

(5) Torque

When torque values are given in this Service Manual, use them. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.

(6) Force

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

(7) Edges

Watch for sharp edges, as they could cause injury through careless handling, especially during major engine disassembly and assembly. Use a clean piece of thick cloth when lifting the engine or turning it over.

(8) High-Flash Point Solvent

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

(9) Gasket, O-ring

Replace a gasket or an O-ring with a new part when disassembling. Remove any foreign matter from the mating surface of the gasket or O-ring to ensure a perfectly smooth surface to prevent oil or compression leaks.

(10) Liquid Gasket, Locking Agent

Clean and prepare surfaces where liquid gasket or non-permanent locking agent will be used. Apply them sparingly. Excessive amount may block engine oil passages and cause serious damage.

Before Servicing

(11) Press

When using a press or driver to install a part such as a wheel bearing, apply a small amount of oil to the area where the two parts come in contact to ensure a smooth fit.

(12) Ball Bearing and Needle Bearing

Do not remove a ball bearing or a needle bearing unless it is absolutely necessary. Replace any ball or needle bearings that were removed with new ones. Install bearings with the manufacturer and size marks facing out, applying pressure evenly with a suitable driver. Apply force only to the end of the race that contacts the press fit portion, and press it evenly over the base component.

(13) Oil Seal and Grease Seal

Replace any oil or grease seals that were removed with new ones, as removal generally damages seals. Oil or grease seals should be pressed into place using a suitable driver, applying a force uniformly to the end of seal until the face of the seal is even with the end of the hole, unless instructed otherwise. When pressing in an oil or grease seal which has manufacturer's marks, press it in with the marks facing out.

(14) Circlip, Retaining Ring, and Cotter Pin

When installing circlips and retaining rings, take care to compress or expand them only enough to install them and no more. Install the circlip with its chamfered side facing load side as well.

Replace any circlips, retaining rings, and cotter pins that were removed with new ones, as removal weakens and deforms them. If old ones are reused, they could become detached while the motorcycle is driven, leading to a major problem.

(15) Lubrication

Engine wear is generally at its maximum while the engine is warming up and before all the sliding surfaces have an adequate lubricative film. During assembly, make sure to apply oil to any sliding surface or bearing that has been cleaned. Old grease or dirty oil could have lost its lubricative quality and may contain foreign particles that act as abrasives; therefore, make sure to wipe it off and apply fresh grease or oil. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended.

(16) Direction of Engine Rotation

To rotate the crankshaft manually, make sure to do so in the direction of positive rotation. Positive rotation is counterclockwise as viewed from the left side of the engine. To carry out proper adjustment, it is furthermore necessary to rotate the engine in the direction of positive rotation as well.

(17) Replacement Parts

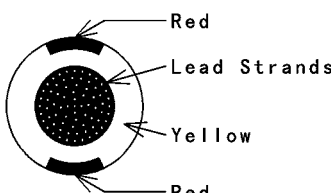

When there is a replacement instruction, replace these parts with new ones every time they are removed.

Replacement parts will be damaged or lose their original function once they are removed. Therefore, always replace these parts with new ones every time they are removed. Although the previously mentioned gasket, O-ring, ball bearing, needle bearing, grease seal, oil seal, circlip, and cotter pin have not been so designated in their respective text, they are replacement parts.

(18) Electrical Leads

All the electrical leads are either one-color or two-color. A two-color lead is identified first by the primary color and then the stripe color. For example, a yellow lead with thin red stripes is referred to as a "yellow/red" lead; it would be a "red/yellow" lead if the colors were reversed. Unless instructed otherwise, electrical leads must be connected to leads of the same color.

Two-Color Electrical

Lead (cross-section)	Color Indicated on the Lead	Color Indicated on the Wiring Diagram
	<p>Yellow/Red</p>	

1-4 GENERAL INFORMATION

Before Servicing

(19) Inspection

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

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

(20) Specifications

Specification terms are defined as follows:

“Standards” show dimensions or performances which brand-new parts or systems have.

“Service Limits” indicate the usable limits. If the measurement shows excessive wear or deteriorated performance, replace the damaged parts.

Model Identification

KX125-M1 Left Side View



KX125-M1 Right Side View



1-6 GENERAL INFORMATION

Model Identification

KX250-M1 Left Side View



KX250-M1 Right Side View



General Specifications

Items	KX125-M1	KX125-M2 ~ M3	KX125M6F ~
Dimensions			
Overall Length	2 155 mm (84.8 in.)	2 165 mm (85.2 in.)	
Overall Width	825 mm (32.5 in.)	840 mm (33.1 in.)	815 mm (32.1 in.)
Overall Height	1 200 mm (47.2 in.)	1 265 mm (49.8 in.)	
Wheelbase	1 455 mm (57.3 in.)	1 470 mm (57.9 in.)	
Road Clearance	340 mm (13.4 in.)	←	
Seat Height	930 mm (36.6 in.)	940 mm (37.0 in.)	
Dry Mass	87 kg (192 lb)	←	
Curb Mass:			
Front	45 kg (99 lb)	←	
Rear	47 kg (104 lb)	←	
Fuel Tank Capacity	8.2 L (2.2 US gal)	←	
Engine			
Type	2-stroke, single cylinder, crankcase reed valve	←	
Cooling System	Liquid-cooled	←	
Bore and Stroke	54.0 × 54.5 mm (2.13 × 2.15 in.)	←	
Displacement	124 cm ³ (7.6 cu in.)	←	
Compression Ratio:			
Low Speed	10.6 : 1	11.1 : 1 (EUR) 10.9 : 1	
High Speed	8.1 : 1	8.5 : 1 (EUR) 8.3 : 1	
Carburetion System	Carburetor, MIKUNI TMX38 χ	←	
Starting System	Primary kick	←	
Ignition System	CDI	←	
Ignition Timing	13° BTDC @9 710 r/min (rpm)	13° BTDC @9 710 r/min (rpm)	
Spark Plug	NGK BR9EIX	NGK R6918B-9	NGK BR9ECMVX
Port Timing			
Inlet:			
Open	Full open	←	
Close	—	—	
Scavenging:			
Open	64.9° BBDC	←	
Close	64.9° ABDC	←	
Exhaust:			
Open	73.8° BBDC (low speed), 95.4° BBDC (high speed)	←	
Close	73.8° ABDC (low speed), 95.4° ABDC (high speed)	←	
Lubrication System (Gasoline : Oil)	Petrol mix (32 : 1)	←	
Drive Train			
Primary Reduction System:			
Type	Gear	←	
Reduction Ratio	3.200 (64/20)	←	

1-8 GENERAL INFORMATION

General Specifications

Items	KX125-M1	KX125-M2 ~ M3	KX125M6F ~
Clutch Type	Wet, multi disc		←
Transmission:			
Type	6-speed, constant mesh, return shift		←
Gear Ratios:			
1st	2.384 (31/13)		←
2nd	1.857 (26/14)		←
3rd	1.529 (26/17)		←
4th	1.294 (22/17)		←
5th	1.125 (27/24)		←
6th	1.000 (25/25)		←
Final Drive System:			
Type	Chain drive		←
Reduction Ratio	3.923 (51/13)		←
Overall Drive Ratio	12.553 @Top gear		←
Transmission Oil:			
Grade	API SE, SF or SG API SH or SJ with JASO MA	←	API SH, SJ or SL with JASOMA (KX125M7F ~)
Viscosity	SAE 10W-40		←
Capacity	0.7 L (0.74 US qt)		←
Frame			
Type	Tubular, semi-double cradle		←
Steering Angle	45° to either side		42° to either side
Caster (rake angle)	27.5°		27°
Trail	100 mm (3.9 in.)		113 mm (4.4 in.)
Front Tire:			
Size	80/100-21 51M		←
Make/Type	DUNLOP, Tube type		←
Rear Tire:			
Size	100/90-19 57M		←
Make/Type	DUNLOP, Tube type		←
Rim Size:			
Front	21 × 1.60		←
Rear	19 × 1.85		←
Front Suspension:			
Type	Telescopic fork (up side down)		←
Wheel Travel	300 mm (11.8 in.)		←
Rear Suspension:			
Type	Swingarm (Uni-trak)		Swingarm (New Uni-trak)
Wheel Travel	310 mm (12.2 in.)		←
Brake Type:			
Front and Rear	Single disc		←

GENERAL INFORMATION 1-9

General Specifications

Items	KX125-M1	KX125-M2 ~ M3	KX125M6F ~
Effective Disc Diameter:			
Front	220 mm (8.7 in.)	225 mm (8.9 in.)	
Rear	200 mm (7.9 in.)	215 mm (8.5 in.)	

Specifications are subject to change without notice, and may not apply to every country.
(EUR): Europe Model

1-10 GENERAL INFORMATION

General Specifications

Items	KX250-M1	KX250-M2
Dimensions		
Overall Length	2 175 mm (85.6 in.)	←
Overall Width	825 mm (32.5 in.)	840 mm (33.1 in.)
Overall Height	1 205 mm (47.4 in.)	1 265 mm (49.8 in.)
Wheelbase	1 480 mm (58.3 in.)	←
Road Clearance	355 mm (14.0 in.)	340 mm (13.4 in.)
Seat Height	945 mm (37.2 in.)	←
Dry Mass	97 kg (214 lb)	←
Curb Mass:		
Front	50 kg (110 lb)	←
Rear	51 kg (112 lb)	←
Fuel tank Capacity	8.2 L (2.2 US gal)	←
Engine		
Type	2-stroke, single cylinder, piston reed valve	←
Cooling System	Liquid-cooled	←
Bore and Stroke	66.4 × 72.0 mm (2.61 × 2.85 in.)	←
Displacement	249 cm ³ (15.25 cu in.)	←
Compression Ratio		
Low Speed	10.1 : 1	10.5 : 1
High Speed	8.6 : 1	8.8 : 1
Carburetion System	Carburetor, KEIHIN PWK38S	←
Starting System	Primary kick	←
Ignition System	CDI	←
Ignition Timing	14° BTDC @7 740 r/min (rpm)	←
Spark Plug	NGK BR8EIX	←
Port Timing:		
Inlet:		
Open	Full open	←
Close	—	—
Scavenging:		
Open	57.6° BBDC	59.3° BBDC
Close	57.6° ABDC	59.3° ABDC
Exhaust:		
Open	78.1° BBDC (low speed), 91.4° BBDC (high speed)	78.4° BBDC (low speed), 92.2° BBDC (high speed)
Close	78.1° ABDC (low speed), 91.4° ABDC (high speed)	78.4° ABDC (low speed), 92.2° ABDC (high speed)
Lubrication System (Gasoline: Oil)	Petrol mix (32 : 1)	←
Drive Train		
Primary Reduction System:		
Type	Gear	←
Reduction ratio	3.000 (63/21)	←
Clutch Type	Wet, multi disc	←

General Specifications

Items	KX250-M1	KX250-M2
Transmission:		
Type	5 speed, constant mesh, return shift	←
Gear Ratios:		
1st	1.800 (27/15)	←
2nd	1.437 (23/16)	←
3rd	1.176 (20/17)	←
4th	1.000 (21/21)	←
5th	0.869 (20/23)	←
Final Drive System		
Type	Chain drive	←
Reduction Ratio	3.769 (49/13)	←
Overall Drive Ratio	9.832 @Top gear	←
Transmission Oil:		
Grade	API SE, SF or SG API SH or SJ with JASO MA	← ←
Viscosity	SAE 10W-40	←
Capacity	0.85 L (0.90 US qt)	←
Frame		
Type	Tubular, semi-double cradle	←
Steering Angle	45° to either side	42° to either side
Caster (rake angle)	27°	←
Trail	97 mm (3.8 in.)	112 mm (4.4 in.)
Front Tire:		
Size	80/100-21 51M	←
Make/Type	BRIDGESTONE, Tube type (EUR) DUNLOP, Tube type	← ←
Rear Tire:		
Size	110/90-19 62M	←
Make/Type	BRIDGESTONE, Tube type (EUR) DUNLOP, Tube type	← ←
Rim Size:		
Front	21 × 1.60	←
Rear	19 × 2.15	←
Front Suspension:		
Type	Telescopic fork (up side down)	←
Wheel Travel	300 mm (11.8 in.)	←
Rear Suspension:		
Type	Swingarm (Uni-trak)	Swingarm (New Uni-trak)
Wheel Travel	310 mm (12.2 in.)	←
Brake Type:		
Front and Rear	Single disc	←

1-12 GENERAL INFORMATION

General Specifications

Items	KX250-M1	KX250-M2
Effective Disc Diameter:		
Front	220 mm (8.7 in.)	225 mm (8.9 in.)
Rear	200 mm (7.9 in.)	215 mm (8.5 in.)

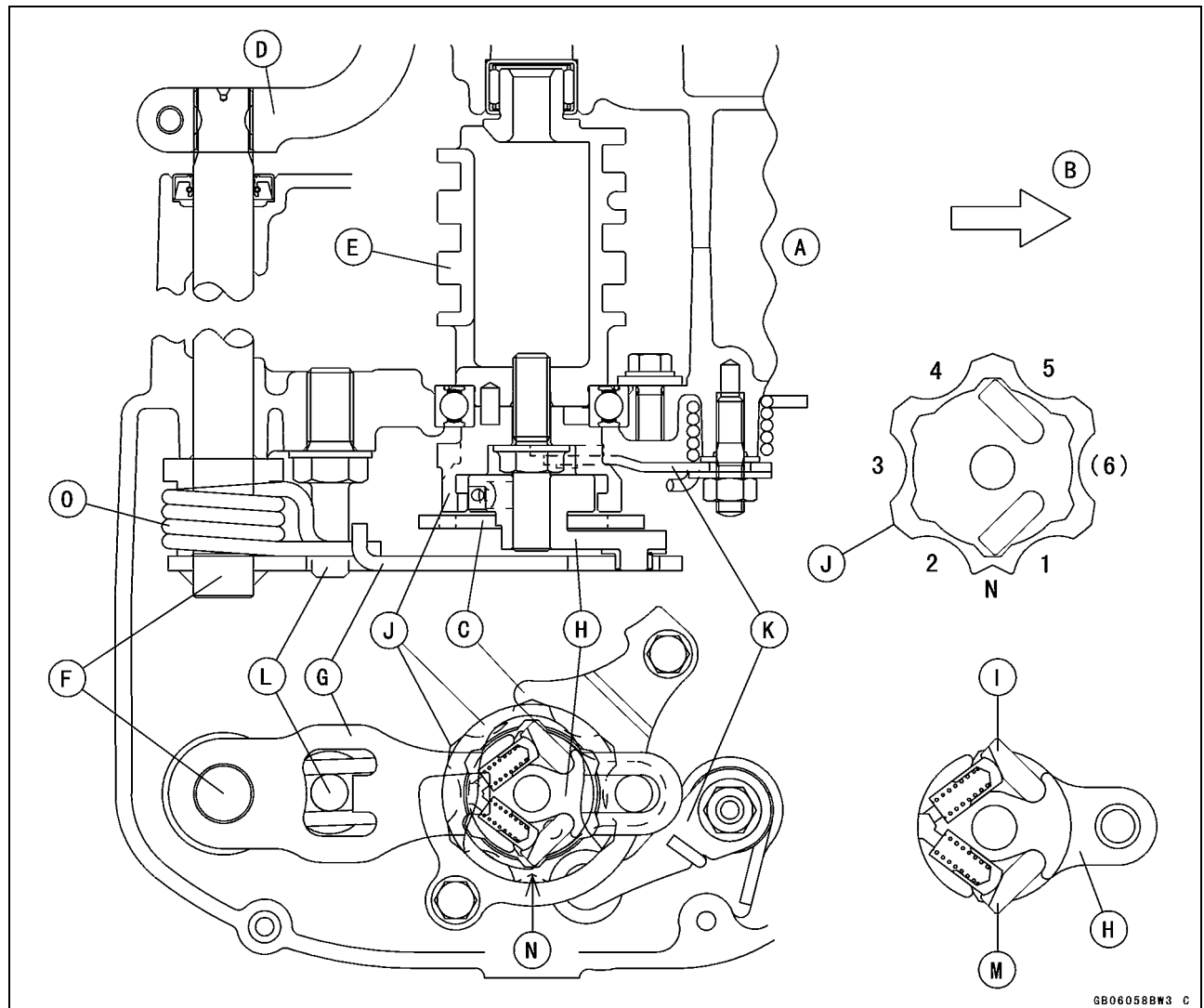
Specifications are subject to change without notice, and may not apply to every country.

(EUR): Europe Model

Technical Information

Ratchet-Type Shift Mechanism (KX250M, KX125M)

- The shift mechanism of the KX250M (5-speed) is shown in the following figure.
- This mechanism is stronger and simpler than the usual slide type and enables light and positive shifting. When the shift pedal [D] is applied, its turning force is transmitted almost directly to the shift drum [E].
- The mechanism has shorter length between the shift drum and the drive shaft, compared with the previous model (for example, from 67 mm to 43.2 mm for KX125).
- The shift force is transmitted as follows:
Shift Pedal → Shift Shaft [F] → Shift Mechanism Arm [G] → Ratchet [H] → Pawls [I], [M] in Ratchet → Shift Drum Cam [J] → Shift Forks → Gears



- A. Top View
- B. Front
- C. Ratchet Plate
- D. Shift Pedal
- E. Shift Drum

- F. Top View
- G. Shift Mechanism Arm
- H. Ratchet
- I. Upper Pawls
- J. Shift Drum Cam

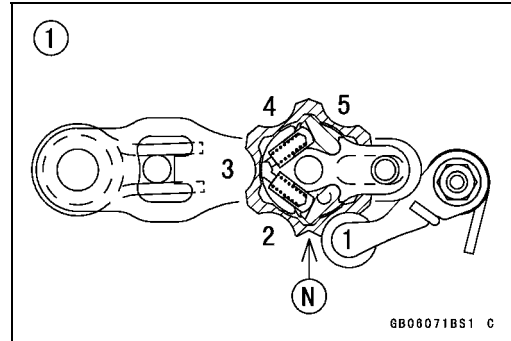
- K. Gear Set Lever
- L. Return Spring Pin
- M. Lower Pawl
- N. Neutral Detent
- O. Return Spring

1-14 GENERAL INFORMATION

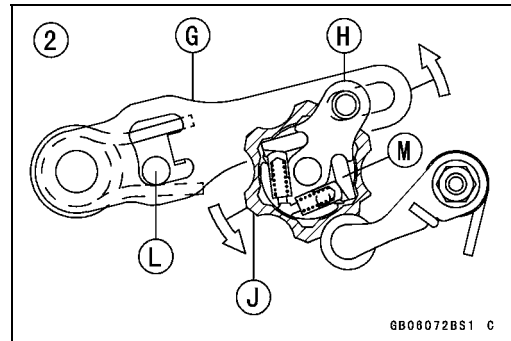
Technical Information

○This mechanism operates as follows:

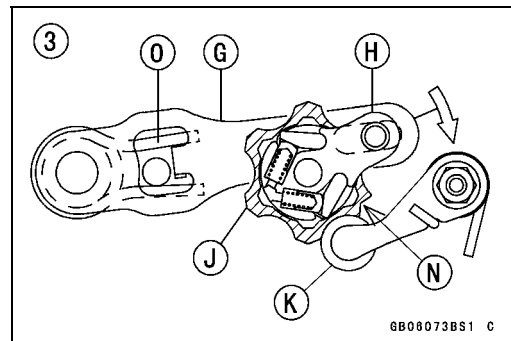
1. Suppose the 1st gear position is set as shown.
Neutral Detent [N]



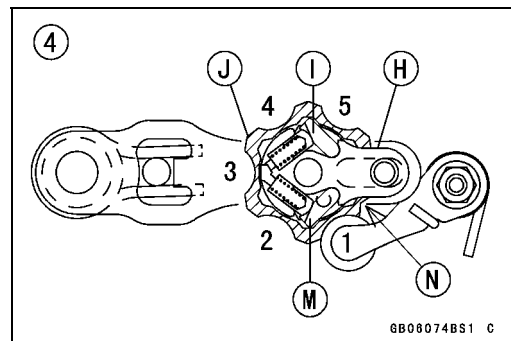
2. Shift Up (for example: shift from 1st to 2nd)
(→) : transmitting of shift force
The shift pedal is lifted. → The arm [G] turns counter-clockwise until it stops at pin [L]. → ratchet [H] → lower pawl [M] → shift drum cam [J] → shift drum → The gear is shifted in 2nd position.



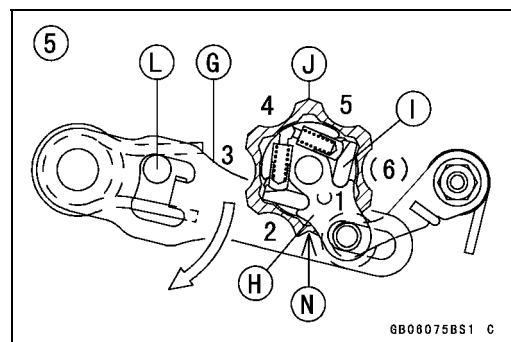
3. Ratchet Returns.
The arm [G] returns by force of spring [O]. → The ratchet [H] disengages to be free by itself. → The set lever [K] holds the shift drum cam [J]. → The ratchet [H] returns (turns clockwise).



4. The 2nd Gear Position settles.
The upper and lower pawls [I], [M] catch the next teeth inside the shift drum cam [J] → The ratchet [H] settles in position. → The 2nd gear position settles.



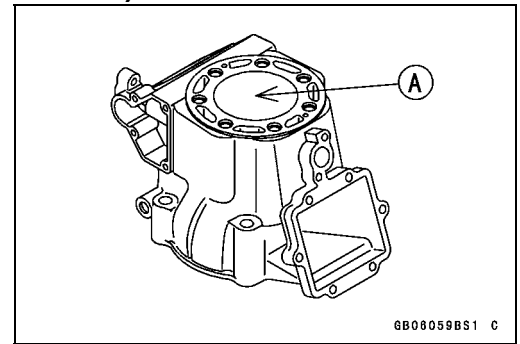
5. Shift Down (for example: shift from 2nd to 1st)
The shift pedal is depressed. → The arm [G] turns clockwise until it stops at the pin [L]. → ratchet [H] → upper pawl [I] → shift drum cam [J] → shift drum → The gear is shifted into 1st position. → (continues to operate in the same way as Shift Up)



Technical Information

Chrome Composite Plating Cylinder (KX250M, KX125M)

○This new cylinder bore [A] has Kawasaki's composite cylinder plating, which is used for the first time on two stroke engines. The composite plating includes a nickel-phosphorous alloy, inorganic materials like ceramic, silicone carbide and some organic materials.



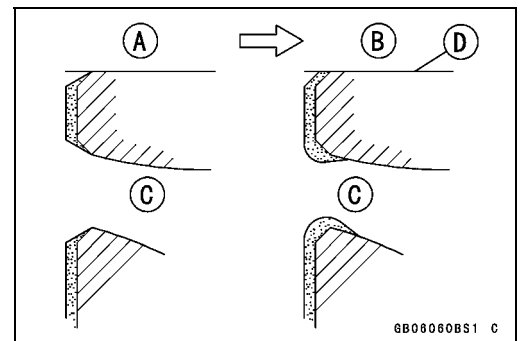
○The treatment improves heat transfer of the cylinder for consistent power output, allows closer piston-to-cylinder clearances for more horsepower.

○The treatment is porous, so it holds lubrication well, and hard, so it resists abrasion and seizure.

○This plating gets on well even the chamfered edge of the cylinder top or port.

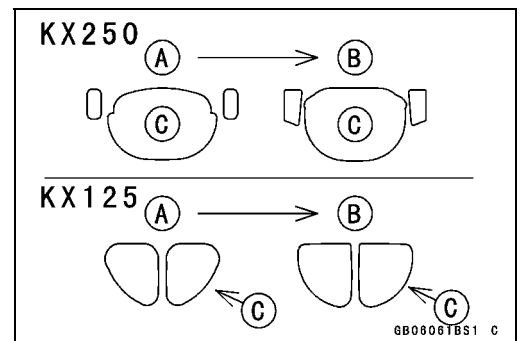
○This improves the surface of the chamber at the top of the cylinder, preventing hot spots, resultant pre-ignition and other abnormal combustion in the chamber.

- Previous Cylinder [A]
- New Cylinder [B]
- Exhaust Port [C]
- Cylinder Top [D]



○This enables the top end of the exhaust port from round to straight in order to make gas flow smooth and improve mid-high performance and extending piston ring life.

- Previous Cylinder [A]
- New Cylinder [B]
- Exhaust Port [C]



1-16 GENERAL INFORMATION

Technical Information

KIPS (Kawasaki Integrated Power Valve System, KX250M, KX125M)

○KIPS varies the exhaust port height to broaden the useful rpm range for low end and mid-range without sacrificing the top end power (see '95 KDX200H Service Manual (Part No. 99924-1181-01) for basic information about KIPS).

○KIPS is 2-stage-3-way type: the main exhaust port is opened earlier than the sub-exhaust ports (2-stage) and they are opened differently in low, middle and high rpm (3-way).

(In low rpm)

resonator: open to fully, sub-exhaust ports and main exhaust port: close

(In middle rpm)

resonator: close, main exhaust port: open to fully, sub-exhaust ports open to halfway

(In high rpm)

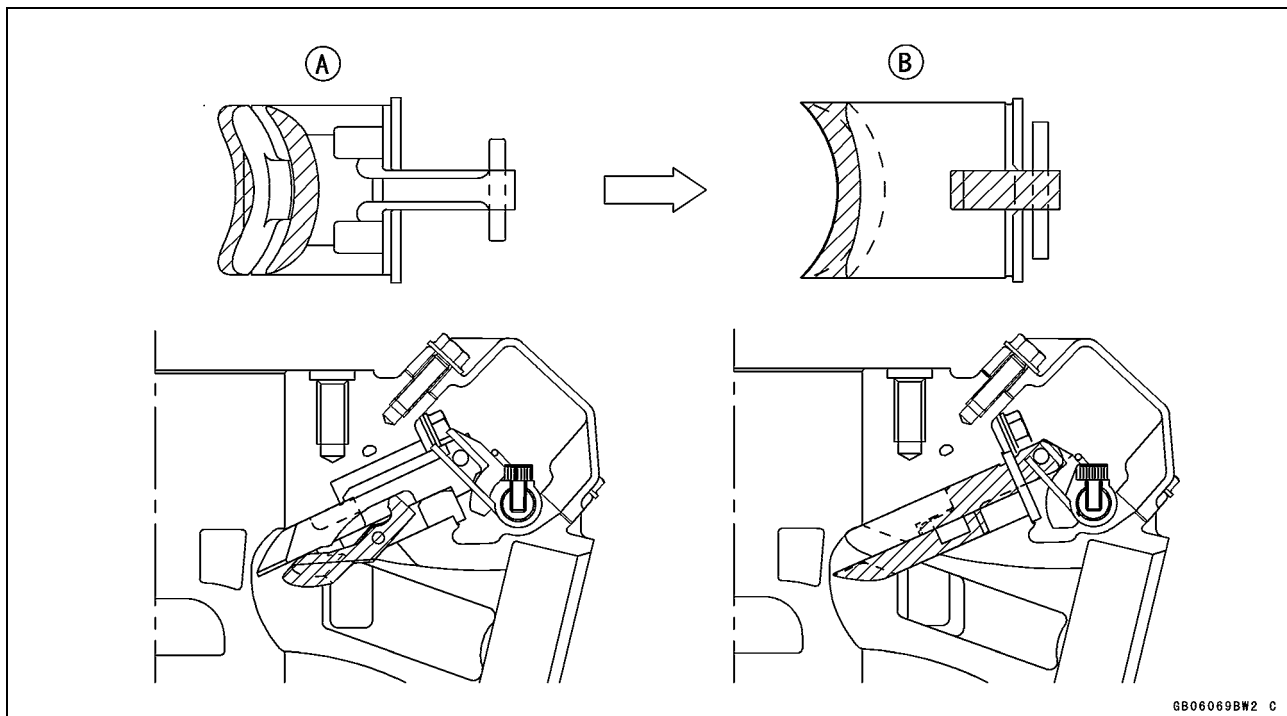
resonator: close, main exhaust port and sub-exhaust ports open fully.

○The KIPS valve is now made of aluminum instead of steel to save weight.

○The KIPS main valve holder shape is modified to match the straightened exhaust port, and timing for the main and sub-valves is changed to deliver more power in the low to mid-range.

○The main valve end is changed from thick end to thin end, reducing exhaust pressure on the valve and making valve operation smooth.

(KX250M)



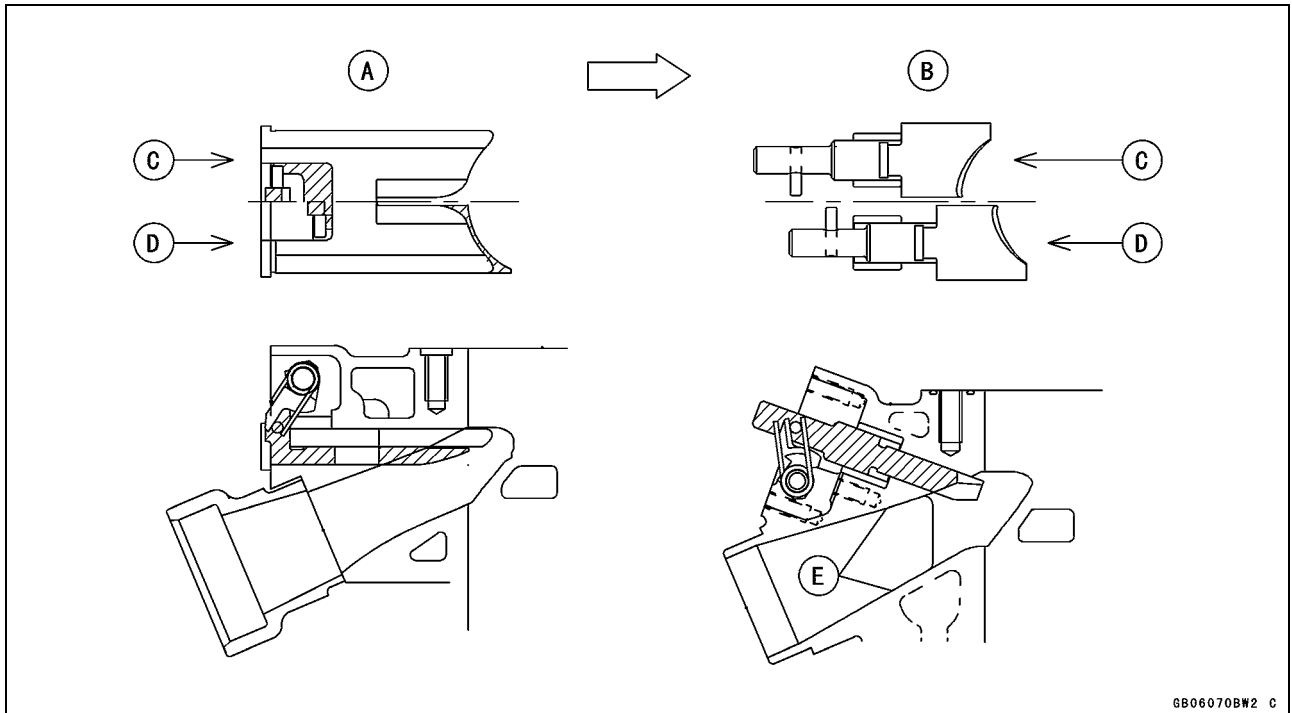
A. Previous KIPS

B. New KIPS

6B06069B#2 C

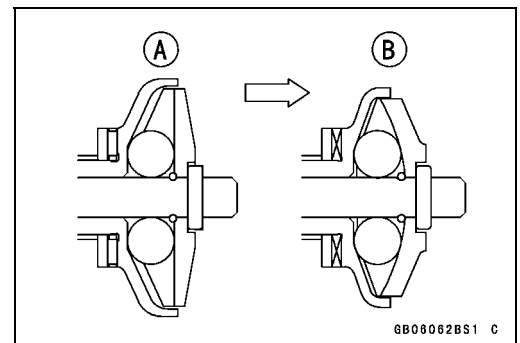
Technical Information

(KX125M)



- A. Previous KIPS
- B. New Model
- C. Full Opened Position
- D. Low Speed Position
- E. Straightened Exhaust Passage

- The KIPS governor is modified so that the exhaust valves operate over a wider rpm range to improve low and mid-range power and smooth the power delivery.
- The KX250's governor inside is changed from straight to concave in order to move the balls smoothly.
- Previous Governor [A]
- New Governor [B]



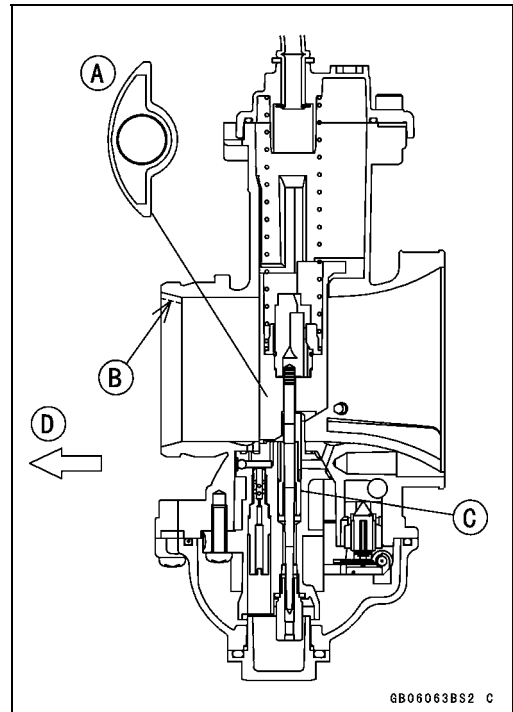
Carburetor (KX250M)

- The 38.7 mm (1.524 in.) Keihin PWK 38S carburetor helps boost mid-range and top-end power.

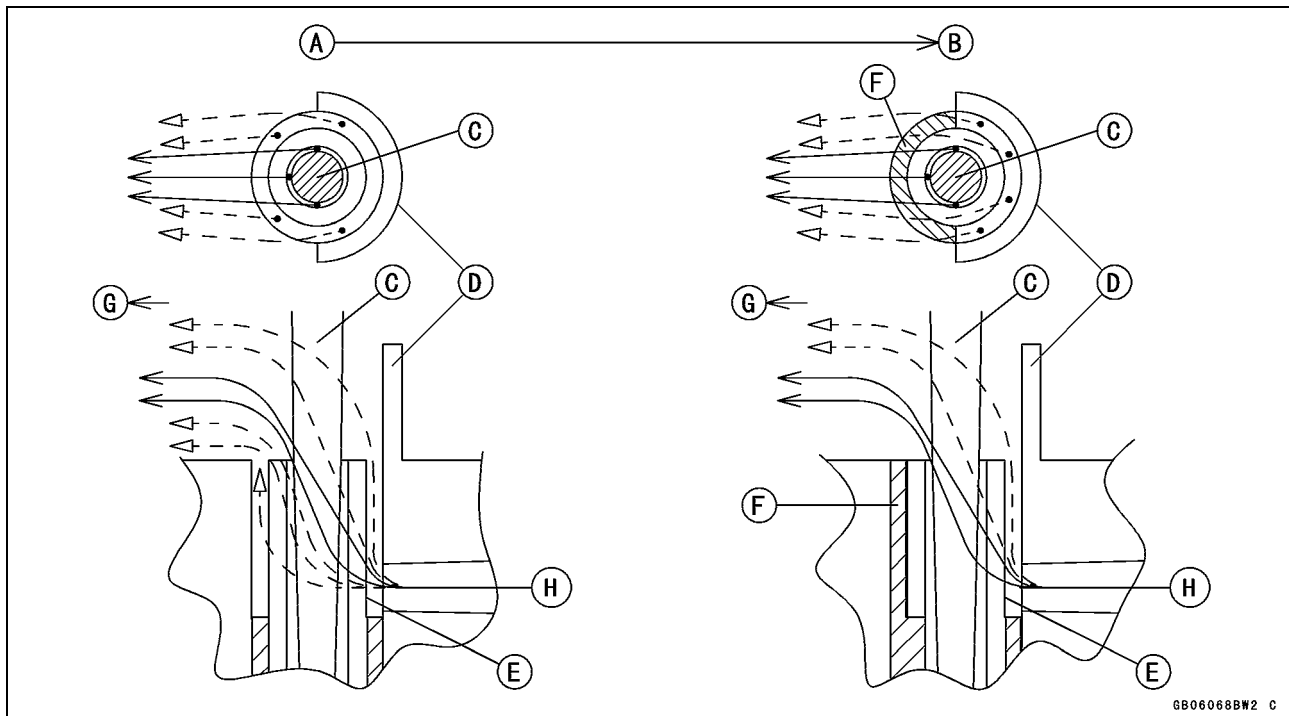
1-18 GENERAL INFORMATION

Technical Information

- The crescent shaped slide [A] enables the needle to sit closer to the intake ports for quicker throttle response.
- Large bores in the front and back of the carburetor and a smoother shape (38 to 40 mm-tapered bore [B]) boost mixture flow for more mid-range and top-end power.
- The semi air bleed needle jet [C] improves throttle response in the very low and low range.
Front [D]



- The air baffle forms vacuum, the stop narrows the outlet and speeds up outflow from the needle jet, improving atomization.



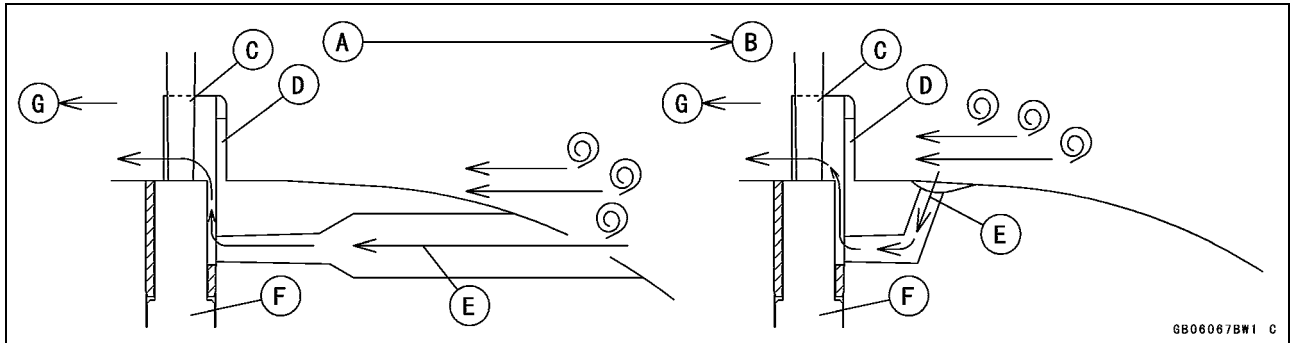
- ←—: Fuel Droplets
- ← - -: Fuel Mist

- A. Previous Carburetor
- B. New Carburetor
- C. Jet Needle
- D. Air Baffle

- E. Needle Jet
- F. Stop
- G. Engine Inlet
- H. Main Air

- The new main air inlet tends to take in static pressure and to exclude dynamic pressure and vortices, making the main air flow stable.

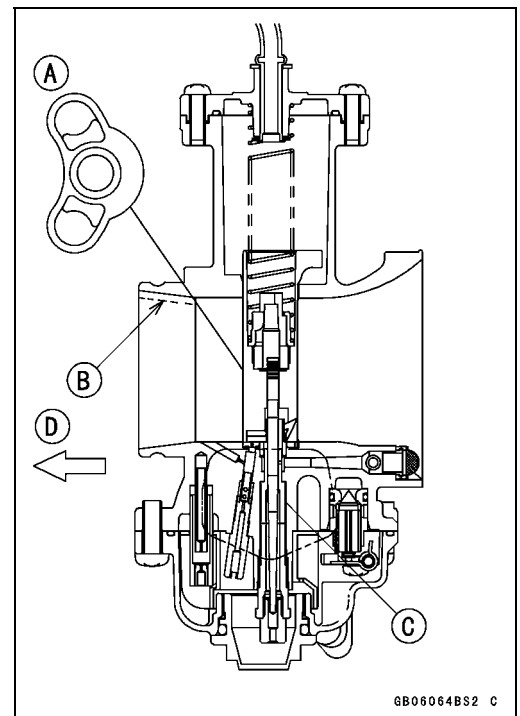
Technical Information



- A. Previous Carburetor
- B. New Carburetor
- C. Jet Needle
- D. Air Baffle
- E. Main Air
- F. Needle Jet
- G. Engine Inlet

Carburetor (KX125M)

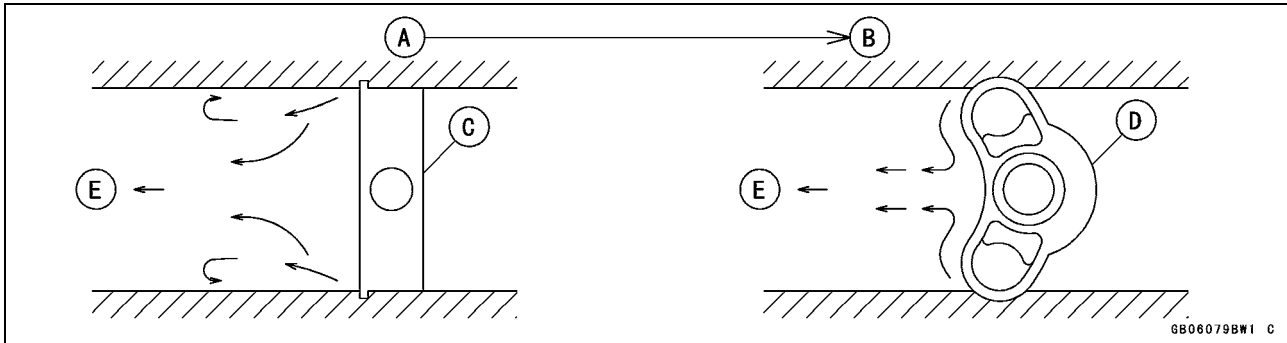
- The 38 mm (1.496 in.) Mikuni TMX 38-27 carburetor helps boost mid-range and top-end power.
 - The arched slide [A] improves throttle response in the very low and low ranges.
 - Large bores in the front and back of the carburetor and a smoother shape (38 to 40 mm-tapered bore [B]) boost mixture flow for more mid-range and top-end power.
 - The semi air bleed needle jet [C] improves throttle response in the low range and provides proper mixture from the low to top range.
- Front [D]



1-20 GENERAL INFORMATION

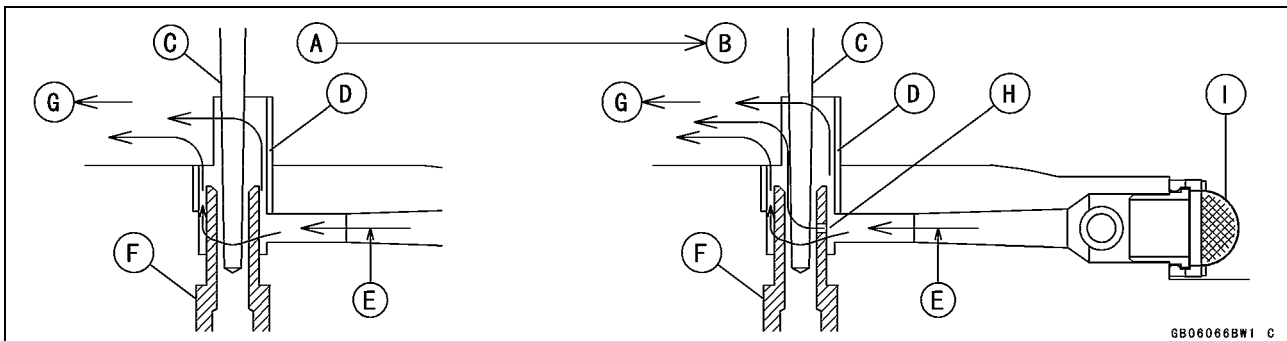
Technical Information

○ In low range, fuel drops in the fuel/air mixture is larger and tends to stick to the carburetor wall. The arched slide deflects fuel/air mixture flow from the wall to the middle of the carburetor for better atomization and better throttle response.



- A. Previous Carburetor
- B. New Carburetor
- C. Flat Slide (piston valve)
- D. Arched Shape Slide (piston valve)
- E. Engine Intake

○ The semi air bleed hole is positioned at the side of the needle jet, where fuel mixes with air well (due to enough fuel and faster air flow than in main bore), resulting in better atomizing. The air screen suppresses dynamic pressure around the main air inlet.



- A. Previous Carburetor
- B. New Carburetor
- C. Jet Needle
- D. Air Baffle
- E. Main Air
- F. Needle Jet
- G. Engine Intake
- H. Semi Air Bleed Hole
- I. Air Screen

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	=	kgf
N	×	0.2248	=	lb

kgf	×	9.807	=	N
kgf	×	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	=	cm Hg

kgf/cm ²	×	98.07	=	kPa
kgf/cm ²	×	14.22	=	psi
cm Hg	×	1.333	=	kPa

Units of Speed:

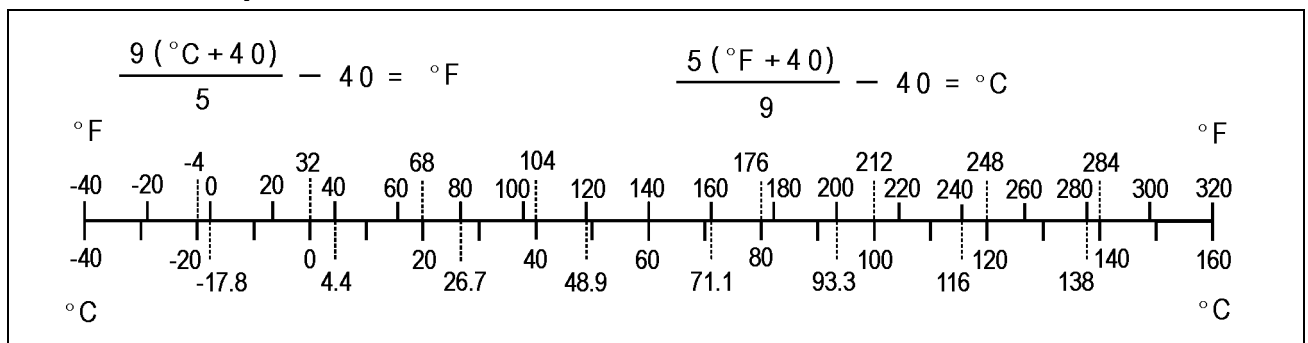
km/h	×	0.6214	=	mph
------	---	--------	---	-----

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

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PERIODIC MAINTENANCE 2-3

Periodic Maintenance Chart

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

		FREQUENCY	After each race or 2.5 hr	Every 3 races or 7.5 hr	Every 5 races or 12.5 hr	Every 10 races or 25 hr	As re-quired	See Page
E	Spark plug - clean and inspect †	•	R					2-47
	Clutch - inspect	•						2-25
	Clutch plates - inspect †		•	R				2-26
	Throttle cable - inspect	•						2-14
	Air cleaner element - clean and inspect	•						2-15
N	Air cleaner element - replace		If damaged					2-15
	Carburetor - inspect	•						2-15
	Transmission oil - change		•					2-27
G	Piston and piston ring - clean and inspect†		•	R				2-20
	Cylinder head, cylinder - inspect		•					2-19
	Connecting rod- inspect †		•			R		2-23
	Exhaust valve - clean and inspect	•						2-24
	Exhaust system - inspect		•					2-24
N	Muffler - clean and inspect †	•						2-24
	Muffler baffle - change		•					2-25
	Kick pedal and shift pedal - clean	•						-
E	Sprockets - inspect †	•						2-34
	Coolant - inspect †	•					R	2-17
	Water hoses and connections - inspect †	•						2-19
C	Brake adjustment - inspect †	•						2-34
	Brake pad wear - inspect †			•				2-37
	Brake fluid level - inspect †		•					2-35
H	Brake fluid - change		Every 2 years					2-36
A	Brake master cylinder cup and dust cover - replace		Every 2 years					2-37
	Brake caliper fluid seal and dust seal - replace		Every 2 years					2-37
S	Brake hoses and pipe - replace		Every 4 years					2-38
	Brake hoses, connections - inspect †	•						2-38
S	Spoke tightness and rim runout - inspect †	•						2-30
	Wheel bearing - inspect †					•		2-30
I	Drive chain - inspect	•						2-31
	Drive chain - lubricate	•						2-33
S	Drive chain wear - inspect †			•				2-32
	Chain slipper and guide - replace		If damaged					2-43
	Rear sprocket warp (runout) - inspect †			•				2-34
	Front fork - inspect and clean	•						2-39

2-4 PERIODIC MAINTENANCE

Periodic Maintenance Chart

		FREQUENCY					
OPERATION		After each race or 2.5 hr	Every 3 races or 7.5 hr	Every 5 races or 12.5 hr	Every 10 races or 25 hr	As re-quired	See Page
	Front fork oil - change	1st time after 2 races, then every 5 races					2-40
	Rear shock absorber oil - change	1st time after 2 races, then every 5 races					2-42
C	Fuel Tank and Tap - clean	●					2-16
H	Fuel hose - replace	Every 4 years					2-14
A	Fuel hose, connections - inspect †	●					2-14
S	Steering - inspect †	●					2-43
S	Steering stem bearing - lubricate			●			2-46
I	Swingarm and Uni-Trak linkage pivots - lubricate			●			2-42
S	Swingarm and Uni-Trak linkage - inspect †			●			2-42
	Wheel/tire (air pressure, excessive wear or damage) - inspect	●					2-28
	Frame - clean and inspect	●					2-46
	Nuts, bolts, and fasteners tightness- inspect †	●					2-49
	General lubrication - perform	●					2-48

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

R: Replace

Torque and Locking Agent

Tighten all bolts and nuts to the proper torque using an accurate torque wrench. If insufficiently tightened, a bolt or nut may become damaged, strip an internal thread, or break and then fall out. The following table lists the tightening torque for the major bolts and nuts, and the parts requiring use of a non-permanent locking agent or liquid gasket.

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

Letters used in the "Remarks" column mean:

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

LG : Apply liquid gasket to the threads.

S : Tighten the fasteners following the specified sequence.

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Fuel System				
Carburetor Holder Mounting Bolts	8.8	0.9	78 in·lb	
Carburetor Holding Clamp Screw	1.5	0.15	13 in·lb	
Reed Valve Screws	1.0	0.1	9 in·lb	
Carburetor Top Cover Screws (KX125)	3.0	0.3	26 in·lb	
Carburetor Top Cover Allen Bolts (KX250)	3.9	0.4	35 in·lb	
Throttle Sensor Bolt (KX250)	2.0	0.2	17 in·lb	
Rear Frame Mounting Bolts	34	3.5	25	
Air Cleaner Duct Clamp Screw	1.5	0.15	13 in·lb	
Fuel Tap Plate Mounting Screws	0.8	0.08	7 in·lb	
Air Cleaner Duct Nuts	3.0	0.3	26 in·lb	
Air Cleaner Housing Bolts	8.8	0.9	78 in·lb	
Cooling System				
Water Pump Cover Bolts	8.8	0.9	78 in·lb	
Water Pump Impeller Bolt	6.9	0.7	61 in·lb	
Water Hose Clamp Screws	1.5	0.15	13 in·lb	
Coolant Drain Bolt (Water Pump Cover)	8.8	0.9	78 in·lb	
Coolant Drain Bolt (Cylinder) (KX250)	8.8	0.9	78 in·lb	
Water Hose Elbow Fitting Bolts (Cylinder) (KX250)	8.8	0.9	78 in·lb	
Water Pump Cover Fitting Bolts (KX250)	5.9	0.6	52 in·lb	
Radiator Shroud Bolts	8.8	0.9	78 in·lb	
Radiator Mounting Bolts	8.8	0.9	78 in·lb	
Radiator Screen Bolts	8.8	0.9	78 in·lb	
Radiator Bracket Bolts	8.8	0.9	78 in·lb	
Engine Top End				
Main Valve Cover Bolts	5.9	0.6	52 in·lb	S
Cylinder Head Nuts	25	2.5	18	
Spark Plug	27	2.8	20	
Engine Mounting Bracket Nuts:				
Engine Side 10 mm (KX125/250-M1)	44	4.5	33	
Engine Side 10 mm (KX125/250-M2 ~)	49	5.0	36	
Frame Side 8 m	29	3.0	22	

2-6 PERIODIC MAINTENANCE

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
KIPS Cover Bolts:				
KX125-M1	4.9	0.5	43 in·lb	
KX125-M2 ~	8.8	0.9	78 in·lb	
KX250	2.9	0.3	26 in·lb	
Cylinder Nuts:				
KX125	25	2.5	18	
KX250	34	3.5	25	
Cylinder Left Cover Bolts (KX250)	5.9	0.6	52 in·lb	
Main Lever Mounting Allen Bolt	3.9	0.4	35 in·lb	L
Governor Shaft Lever Mounting Bolt (KX125)	6.9	0.7	61 in·lb	
Exhaust Valve Retaining Bolts (KX125)	5.9	0.6	52 in·lb	
Main Shaft Stopper Pin Plug (KX125)	0.8	0.08	7 in·lb	
Main Valve Retaining Bolts (KX250)	5.9	0.6	52 in·lb	
Operating Rod Retaining Screw (KX250)	5.4	0.55	48 in·lb	
Operating Rod Left Side Plug (KX250)	22	2.2	16	
Main Valve Rod Cover Screw (KX250)	5.9	0.6	52 in·lb	
Coolant Drain Plug (Cylinder) (KX250)	8.8	0.9	78 in·lb	
Inner Pipe Mounting Bolts	8.8	0.9	78 in·lb	L
Muffler Pipe Mounting Bolts	8.8	0.9	78 in·lb	L
Muffler Damper Mounting Bolts (KX125/250-M2 ~)	8.8	0.9	78 in·lb	
Expansion Chamber Mounting Bolt (KX125/250-M2 ~)	12	1.2	104 in·lb	
Muffler Mounting Bolt	8.8	0.9	78 in·lb	
Engine Right Side				
Clutch Hub Nut	98	10.0	72	
Clutch Spring Bolts	8.8	0.9	78 in·lb	
Clutch Cover Bolts	8.8	0.9	78 in·lb	
Governor Shaft Lever Positioning Plug	0.6	0.06	5 in·lb	
Oil Filler Cap	1.5	0.15	13 in·lb	
Right Engine Cover Bolts	8.8	0.9	78 in·lb	
Governor Shaft Lever Mounting Bolt (KX125)	6.9	0.7	61 in·lb	
Exhaust Valve Advancer Lever Mounting Allen Bolts	3.9	0.4	35 in·lb	L
Primary Gear Nut (KX125)	59	6.0	43	
Gear Set Lever Nut	8.8	0.9	78 in·lb	
Ratchet Plate Mounting Bolts	8.8	0.9	78 in·lb	
Kick Ratchet Guide Bolt	8.8	0.9	78 in·lb	
Kick Pedal Bolt:				
KX125	12	1.2	104 in·lb	
KX250	25	2.5	18	
Shift Pedal Bolt	9.8	1.0	87 in·lb	
External Shift Mechanism Return Spring Pin (KX250)	42	4.3	31	L
Gear Set Lever Pivot Stud	—	—	—	L (Planted Side)

PERIODIC MAINTENANCE 2-7

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Engine Removal/Installation				
Engine Mounting Nuts:				
KX125/250-M1	44	4.5	33	
KX125/250-M2 ~	49	5.0	36	
Engine Mounting Bracket Nuts:				
Engine Side 10 mm (KX125/250-M1)	44	4.5	33	
Engine Side 10 mm (KX125/250-M2 ~)	49	5.0	36	
Frame Side 8 mm	29	3.0	22	
Swingarm Pivot Shaft Nut	98	10.0	72	
Engine Bottom End/Transmission				
Output Shaft Bearing Retaining Screws	5.4	0.55	48 in·lb	L
Shift Drum Bearing Retaining Screws (KX125-M1)	6.4	0.65	56 in·lb	L
Shift Drum Bearing Retaining Bolts (KX125-M2 ~)	8.8	0.9	78 in·lb	L
Shift Drum Bearing Retaining Bolts (KX250)	8.8	0.9	78 in·lb	L
Drive Shaft Bearing Retaining Bolts (KX250)	8.8	0.9	78 in·lb	
Engine Oil Drain Bolt	20	2.0	14.5	
Crankcase Bolts	8.8	0.9	78 in·lb	
Flywheel Bolt (KX125)	22	2.2	16	
Flywheel Nut (KX250)	78	8.0	58	
Shift Drum Operating Cam Bolt	24	2.4	17	L
Cylinder Stud	–	–	–	L (Planted Side)
Wheels/Tires				
Front Axle Nut	78	8.0	58	
Front Axle Clamp Bolts	20	2.0	14.5	
Rear Axle Nut	108	11.0	80	
Spoke Nipple	2.2 or more	0.22 or more	19 in·lb or more	
Final Drive				
Rear Axle Nut	108	11.0	80	
Rear Sprocket Nuts	34	3.5	25	
Engine Sprocket Cover Bolts	4.9	0.5	43 in·lb	
Brakes				
Front Master Cylinder Clamp Bolts	8.8	0.9	78 in·lb	
Brake Lever Pivot Bolt	5.9	0.60	52 in·lb	
Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in·lb	
Brake Hose Banjo Bolts	25	2.5	18	
Brake Pad Bolt	18	1.8	13	
Caliper Bleed Valves (Front, Rear)	7.8	0.8	69 in·lb	
Caliper Mounting Bolts (Front)	25	2.5	18	
Rear Master Cylinder Mounting Bolts	9.8	1.0	87 in·lb	
Rear Master Cylinder Push Rod Locknut	18	1.8	13	



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