Kawasaki

KHD600A
KHS750A

Hedge Trimmer (Chapter of cutter blades main body)

Service Manual

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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) 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.

EMISSION CONTROL INFORMATION

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

1. **Exhaust Emission Control System**
   The exhaust emission control system applied to this engine consists of a carburetor and an ignition system having optimum ignition timing characteristics.
   The carburetor has been calibrated to provide lean air/fuel mixture characteristics and optimum fuel economy with a suitable air cleaner and exhaust system.

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

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

Among those acts presumed to consituite tampering are the acts listed below:
Do not tamper with the original emission related part:

- Carburetor and internal parts
- Spark plugs
- Magneto or electronic ignition system
- Fuel filter
- Air cleaner elements

Foreword

This KHD600A/KHS750A Service Manual is designed to be used in conjunction with the TF22 2–stroke air cooled gasoline engine Service Manual (P/N 99924–2503–02). The maintenance and repair procedures described in this manual are only those that are unique to the body of the KHD600A/KHS750A Hedge Trimmer. Most service operations for this model remain identical to those described in the engine Service Manual. Complete and proper servicing of the KHD600A/KHS750A blower therefore requires both this manual and the engine Service Manual.

The engine Service Manual and this manual are designed primarily for use by trained mechanics in a properly equipped shop. However, they contain enough detail and basic information to make them 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 equipment:

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

All information for a particular system from adjustment through disassembly and inspection is located in a single chapter.

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

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

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.

General Information

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1-2 GENERAL INFORMATION

Before Servicing

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

Especially note the following:

(1) Dirt

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

(2) Tightening Sequence

Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them evenly, in a staggered sequence. This is to avoid distortion of the part and/or causing gas or oil leakage. Conversely, when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter of a turn and then remove them. Where there is a tightening sequence indication in this Service Manual, the bolts, nuts, or screws must be tightened in the order and method indicated.

(3) Torque

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.

(4) Force

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

(5) Edges

Watch for sharp edges, especially during major engine disassembly and assembly. Protect your hands with gloves or a piece of thick cloth when lifting the engine or turning it over.

(6) High-Flash Point Solvent

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

(7) Gasket, O-Ring

Do not reuse a gasket or O-ring once it has been in service. The mating surfaces around the gasket should be free of foreign material and perfectly smooth to avoid oil or compression leaks.

(8) Liquid Gasket, Non-Permanent Locking Agent

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

(9) Press

A part installed using a press or driver, such as a journal, should first be coated with oil on its outer or inner circumference so that it will go into place smoothly.

(10) Ball Bearing

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

(11) Oil Seal, Grease Seal

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

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

(12) Seal Guide

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

(13) Circlip, Retaining Ring

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

(14) Cotter Pin

Replace any cotter pins that were removed with new ones, as removal deforms and breaks them.

Before Servicing

(15) Lubrication

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

Don't use just any oil or grease. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended. This manual makes reference to molybdenum disulfide grease (MoS_2) in the assembly of certain engine parts. Always check manufacturer recommendations before using such special lubricants.

(16) Replacement Parts

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

(17) Inspection

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

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

(18) Specifications

Specification terms are defined as follows:

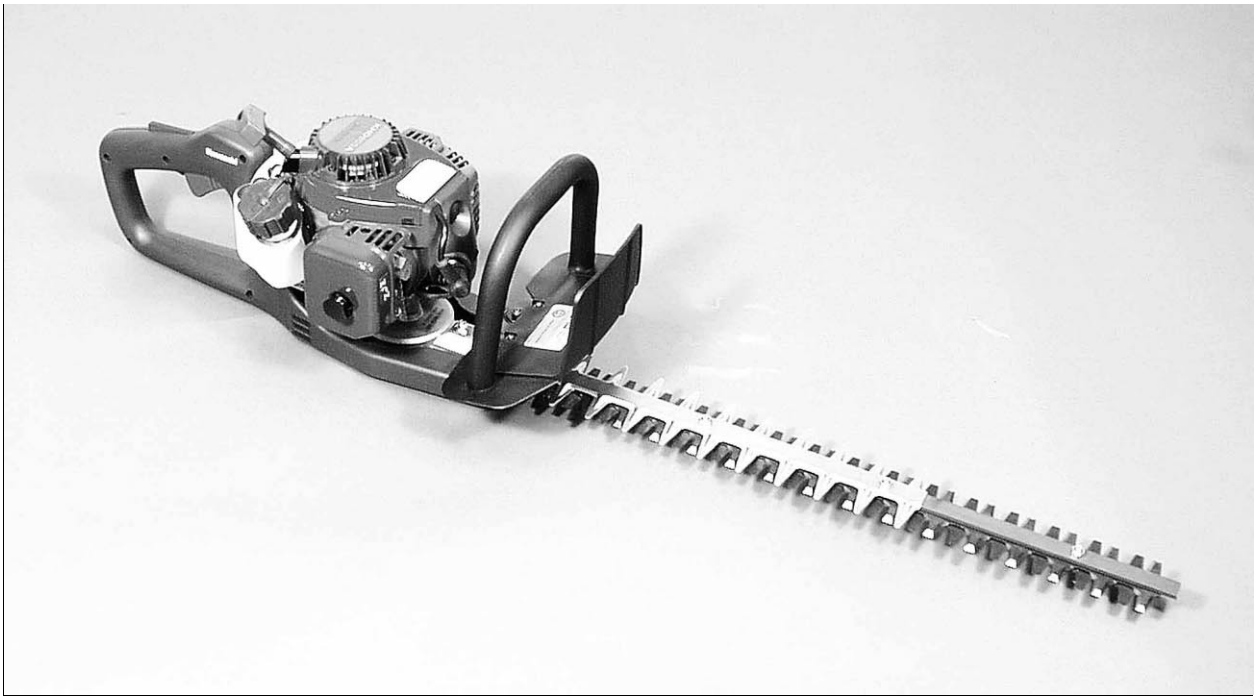
"Standards" show dimensions or performances which brand-new parts or systems have.

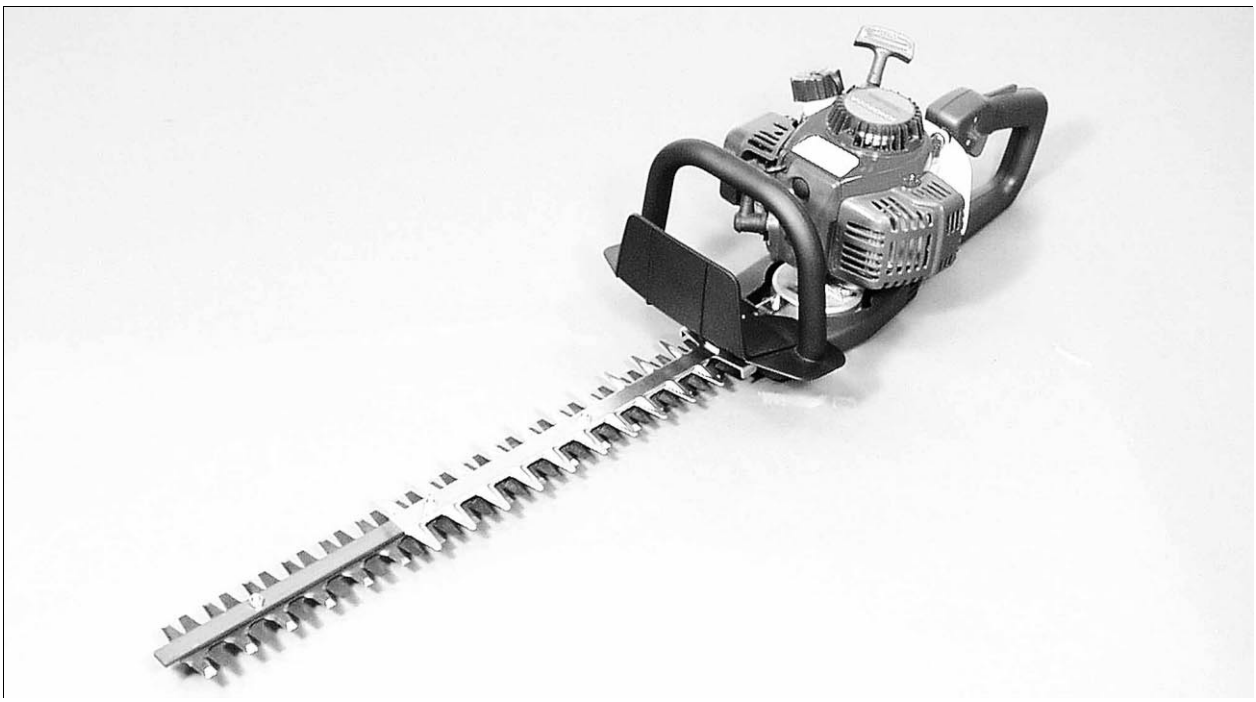
"Service Limits" indicate the usable limits. If the measurement shows excessive wear or deteriorated performance, replace the damaged parts.

1-4 GENERAL INFORMATION

Model Identification

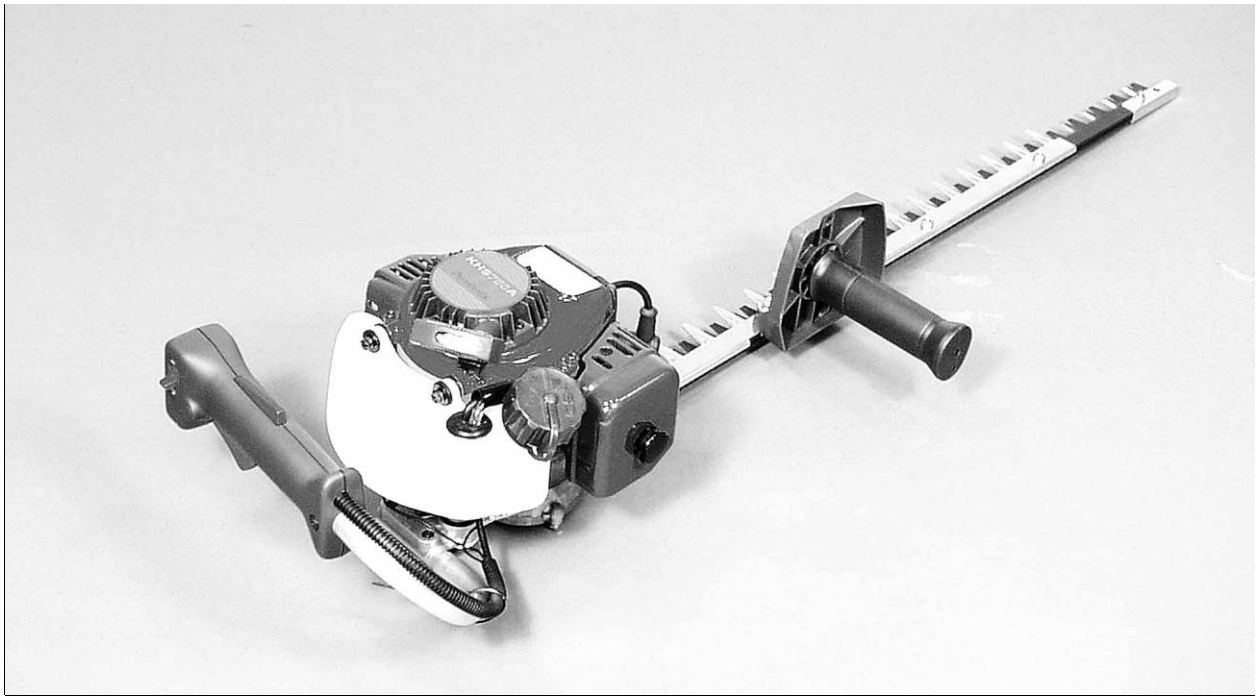
KHD600A

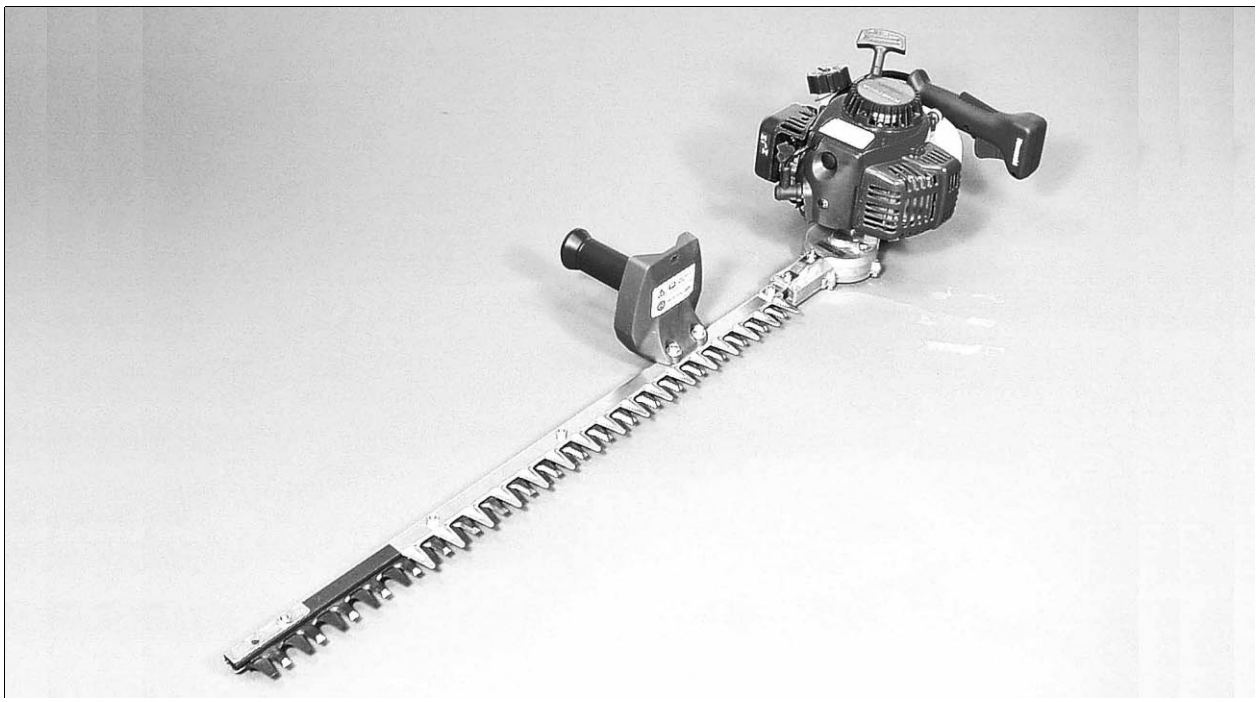




Model Identification

KHS750A





1-6 GENERAL INFORMATION

General Specifications

Items	KHD600A	KHS750A
Dimention:		
Overall length	1036 mm (40.8 in)	1058 mm (41.6 in)
Overall width	244 mm (9.6 in)	292 mm (11.5 in)
Overall height	224 mm (8.8 in)	211 mm (8.3 in)
Overall weight	5.7 kg (12.6 lbs)	5.5 kg (12.1 lbs)
Engine:		
Type	Forced air cooled 2-stroke, vertical shaft gasoline engine	
Displacement	22.6 cm^3 (1.38 cu.in)	
Carburetor	Diaphragm feed, rotary valve, side draft type (walbro WYJ type)	
Stating method	Automatic return lift-up	
Blade activation prevention	Idle start	
Ignition	Solid state ignition	
Spark plug	NGK BMR4A	
Starter	Recoil starter	
Clutch	Automatic centrifugal type ϕ54 mm (2.1 in)	
Fuel:		
Mixing ratio	50 parts of regular unleaded gasoline to 1 part of 2-stroke engine oil by volume	
Tank capacity	0.5 L	
Blades:		
Type	Double-reciprocating, double-sided blades	Double reciprocating, single-sided bladed
Overall length	598 mm (23.5 in)	735 mm (28.9 in)
Cuttin length	519 mm (20.3 in)	692 mm (27.2 in)
Tooth pitch	35 mm (1.38 in)	
Speed	986 mm (38.8 in)/sec @7000 rpm	
Transmission:		
Clutch type	Dry type	
Gear ratio	1 : 4.14 (14 T/58 T)	
Drive	Two series camdrive	
Lubrication	Lithium grease	

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

Periodic Maintenance Chrat

⚠WARNING

Accidental engine starting can cause injury. Always remove the spark plug cap before serving the engine to prevent accidental starting.

Maintenance	Daily	First 20 h	Every 1 h	Every 10 h	Every 20 h	Every 50 h	Every 100 h
ENGINE							
Check and replenish fuel	●						
Check for fuel leakage	●						
Check bolts, screws, nuts for looseness and loss	●						
Check throttle lever operation	●						
Check engine switch operation	●						
Clean fuel filter					●		
Clean air filter element					●		
Tighten bolts, screws, and nuts		●				●	
Clean spark plug and adjust electrode gap						●	
Remove dust and dirt from cylinder fins						●	
Remove carbon deposits on piston head and inside cylinder						●	
Remove carbon deposits in the exhaust pipe of muffler						●	
Clean net of spark arrester						●	
Check the sliding portion of crankshaft, connecting rod etc.							●
Fuel tube	Replace every 3 years						
CUTTER BLADES MAIN BODY							
Check bolts, screws, nuts for looseness and loss	●						
Clean cutter blades and each component	●						
Apply oil to cutter blades			●				
Apply grease to gear case				●			
Tighten mounting bolts of cutter blades					●		

NOTE

○ *The service intervals indicated above are to be used only as guide. All items should be performed more frequently if the engine is subjected to severe operating conditions.*

Tightening Torque

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

Leters used in the “Fastners” and “Remarks” columns mean:

MTGS:Mounting screw(s)

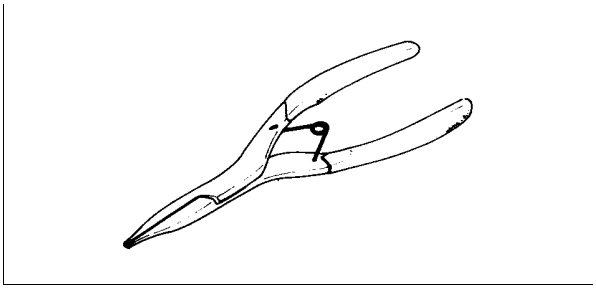
LA: Apply a non-permanent locking agent to the threads.

Tightening Torque-KHD600A/KHS750A

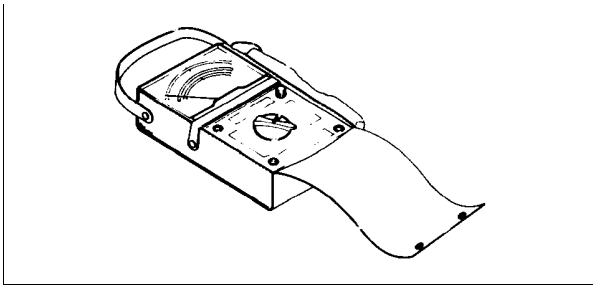
Fasteners	Size	Torque			Remarks
		N·m	kg·m	ft·lb	
ENGINE					
Engine Shroud MTGS	M4	1.7 ∼ 2.0	0.17 ∼ 0.20	15 ∼ 18 in·lb	LA
Muffler Cover MTGS	M4	1.7 ∼ 2.0	0.17 ∼ 0.20	15 ∼ 18 in·lb	LA
Ignition Coil MTGS	M4	2.0 ∼ 2.5	0.20 ∼ 0.25	18 ∼ 22 in·lb	LA
Recoil Starter MTGS	M4	1.7 ∼ 2.0	0.17 ∼ 0.20	15 ∼ 18 in·lb	LA
Crankcase MTGS	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	LA
Cylinder MTGS	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	
Carburetor/Air Cleaner Case MTGS	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	
Insulator MTGS	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	LA
Muffler MTGS	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	LA
Fuel Tank MTGS	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	LA
Clutch Pin	M6	6.0 ∼ 7.0	0.60 ∼ 0.70	53 ∼ 62 in·lb	LA
Flywheel Nut	M8	14 ∼ 16	1.40 ∼ 1.60	10 ∼ 12 in·lb	
Spark Plug	M14	12 ∼ 17	1.20 ∼ 1.70	8.9 ∼ 13 in·lb	
General Bolts and Nuts	M4	2.5 ∼ 3.0	0.25 ∼ 0.30	22 ∼ 27 in·lb	
General Bolts and Nuts	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	
General Bolts and Nuts	M6	6.0 ∼ 8.0	0.60 ∼ 0.80	53 ∼ 71 in·lb	
CUTTER BLADES BODY					
Case-Gear MTGS KHD600A/KHS750A		4.0 ∼ 5.0	0.40 ∼ 0.50	35 ∼ 44 in·lb	
Plate MTGS KHD600A/KHS750A	M5	4.0 ∼ 5.0	0.40 ∼ 0.50	35 ∼ 44 in·lb	LA
Cutter Blade Nut KHD600A/KHS750A	M5	11 ∼ 14	1.10 ∼ 1.40	8.1 ∼ 10	
Front Handle MTGS KHD600A	M6	6.0 ∼ 8.0	0.60 ∼ 0.80	53 ∼ 71 in·lb	
Front Handle MTGS KHS750A	M6	6.0 ∼ 8.0	0.60 ∼ 0.80	53 ∼ 71 in·lb	LA
Rear Handle MTGS KHD600A	M6	6.0 ∼ 8.0	0.60 ∼ 0.80	53 ∼ 71 in·lb	
Rear Handle Bracket Lower KHS750A	M6	6.0 ∼ 8.0	0.60 ∼ 0.80	53 ∼ 71 in·lb	
Rear Handle Bracket Upper KHS750A	M5	3.5 ∼ 4.0	0.35 ∼ 0.40	31 ∼ 35 in·lb	
Engine MTGS KHD600A/KHS750A	M6	6.0 ∼ 8.0	0.60 ∼ 0.80	53 ∼ 71 in·lb	

Special Tools, Sealant

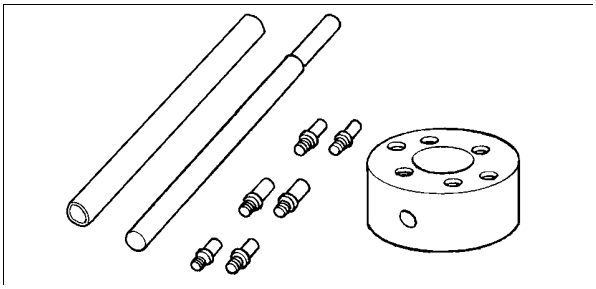
Outside Circlip Pliers: 57001-144



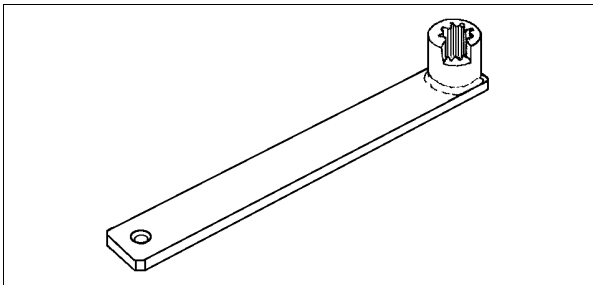
Hand Tester: 57001-1394



Holder & Puller: 57001-1418



Gear Holder: 57001-1424



Sharpening Cutter Edges

Preparation

● Prepare the following tools to sharpen the cutter edges.
Air-powered disc grinder

NOTE

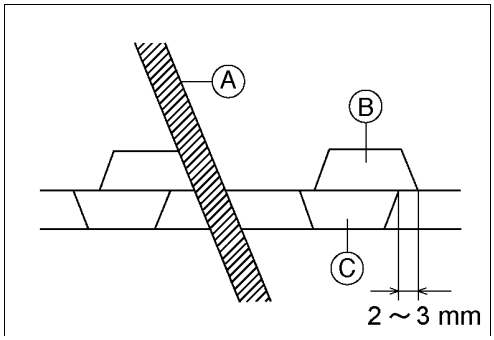
○ *A battery-powered grinder may not have enough disc speed. When disc speed is slow, the cutter edges will be annealed.*

Grinder Disc of about 100 mm Diameter and 2 mm Thick, #60 Grain for Steel Grinding
Vice Grips or Small Clamp
Screw Driver
Wrench for 10 mm Hexagon Nut
Wood Blocks

Cutter Edges Sharpening

1. To sharpen Front and Rear Edges

● Slide the upper and lower cutter blades so that the edges to be sharpened are about 2 ~ 3 mm from each other.
[A] Grinder Disc
[B] Upper Blade
[C] Lower Blade



● Secure both cutter blades with the clamp.
● Put the cutter blades on the blocks. Keep the cutter blades stable while grinding the edges.
● Wear eye protection glasses to protect your eyes.
● Position the grinder so that the grinder disc is parallel with the edges.

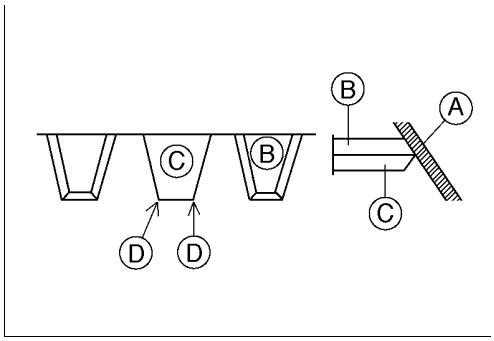
NOTE

○ *Push the grinder forward to sharpen edges in order to get flat, sharp edges. If you pull in the grinder to sharpen the edges, you will get round, dull edges.*

● After sharpening the edges clean the surface of the cutter blades, and apply a few drops of machine oil.

2. To Sharpen Side Edges

● Slide the upper and lower cutter blades so that the upper edges and lower edges align alternately.
1. Grinding Disc
2. Upper Blade
3. Lower Blade
4. Make Sharp corner



● Position the grinder so that the grinder disc is parallel with the edges.
● Finish the edge corners until they are sharp.
● After sharpening the edges clean the surface of the cutter blades, and apply a few drops of machine oil.

KHD600A

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2-2 KHD600A

Disassembly Procedure

⚠WARNING

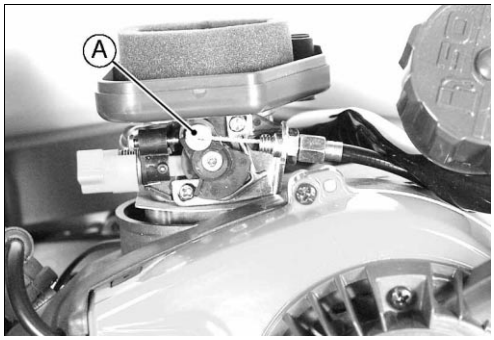
Cutter blades can cause severe injury. Wear gloves to protect the hands when handling the cutter blades.

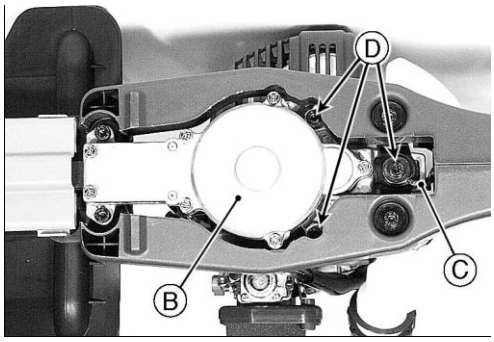
⚠WARNING

Perform a disassembly operation only after stopping the engine and draining the gasoline from the fuel tank. Exercise extreme caution to prevent burns or fire.

Engine Assembly Removal

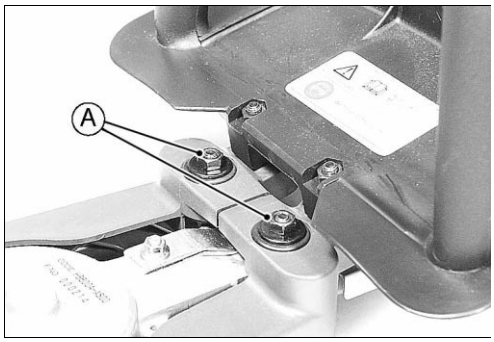
- Remove the air filter cap and remove the cable from the carburetor arm [A].
- Also remove the positive [+] lead for the switch from the terminal.
- Then, remove the three Allen bolts [D] from the gear case [B] and the bracket [C], and detach the engine from the body.





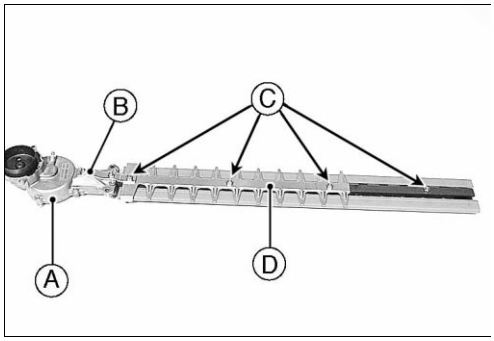
Handle Assembly Removal

- Remove the two nuts and two Allen bolts [A] from the handle assembly to remove the handle assembly from the gear case and the complete cutter.



Gear Case and Cutter Removal

- Remove the two M5 nuts from the plate [B] of the upper gear case [A].
- Remove the four M6 nuts [C] for the cutter adjustment screws to detach the plate [B] and the blade guard [D] from the body.

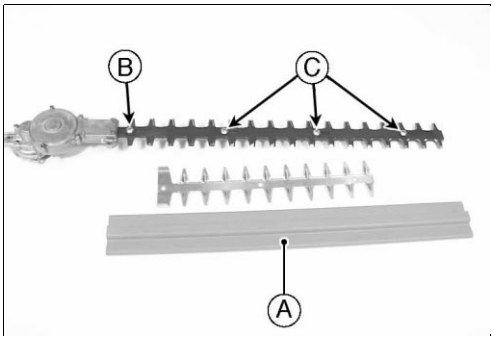


Disassembly Procedure

⚠WARNING

Cutter blades can cause severe injury. Wear gloves to protect the hands when handling the cutter blades.

- Remove the cutter guard [A], and remove one L = 22 mm cutter mounting screw [B] from the gear case and the three L = 19 mm mounting screws [C] from the tip, together with the nuts.

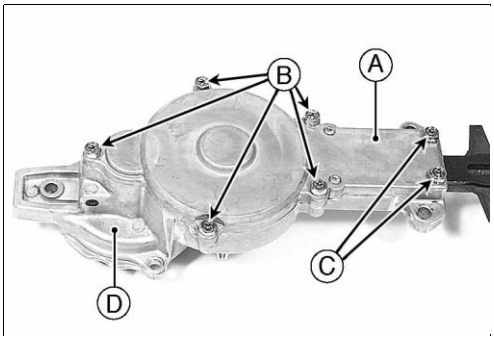


⚠WARNING

After removing the screws, make sure to install the cutter guard to prevent injury from the cutter blades.

- Remove the five 5 x 16 bolts [B] and the two 5 x 16 bolts [C] from the lower gear case [A] to remove the lower gear case [A] from the upper gear case [D].
- Remove the seal [E] and the cutter rod [F] to remove the cutter guard; then, remove the upper and lower cutters.
- Using the special tool, remove the snap ring to remove the cutter rod [G].

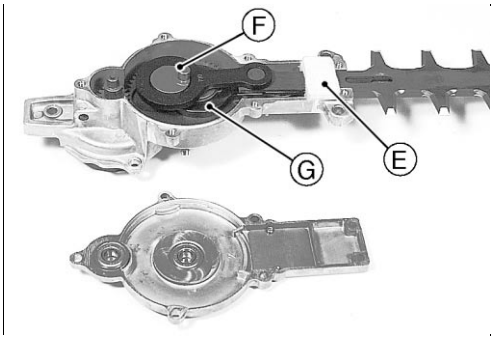
Special Tool - Circlip Pliers: 57001-154



- Then, remove the large and small gears from the upper gear case.

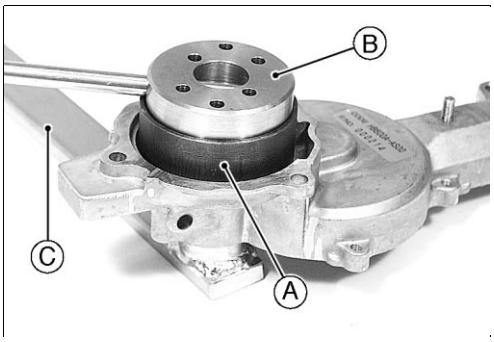
NOTE

○ *The cutter rod contains 30 rollers. Make sure not to lose them during disassembly. If any roller has been lost, the cutter rod must be replaced as an assembly.*



- Remove the clutch drum [A].
- Place the special tools against the clutch drum and the gear. Use a hammer to lightly tap counterclockwise on the special tool that is placed against the clutch drum, thus removing the drum.

Special Tools - Socket Wrench: 57001-1418 [B]
Gear Holder: 57001-1424 [C]

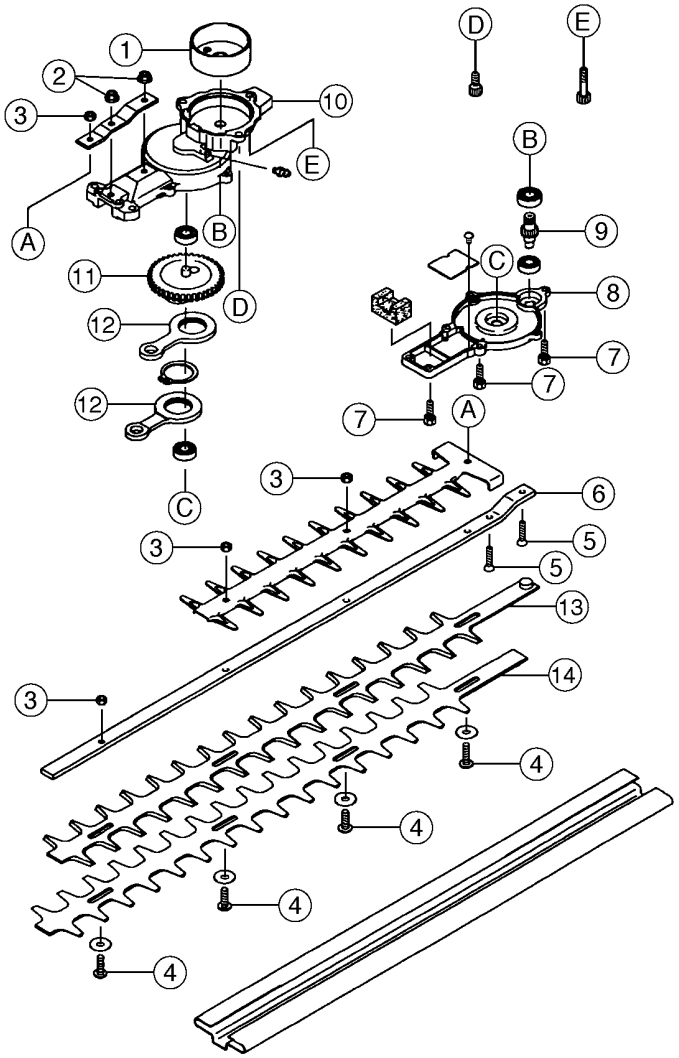


2-4 KHD600A

Reassembly Procedure

Gear Case and Cutter Installation Procedure

Exploded View



1. Clutch Drum
2. Reinfor Plate Nuts
3. Locknuts
4. Cutter Blade Guide Screws
5. Guide Plate Mounting Screws
6. Cutter Blade Guide Plate
7. Gear Case Bolts
8. Lower Gear Case
9. Pinion Gear
10. Upper Gear Case
11. Cam Gear
12. Con-Rods with Needle Rollers
13. Upper Cutter Blade (Short)
14. Lower Cutter Blade (Long)

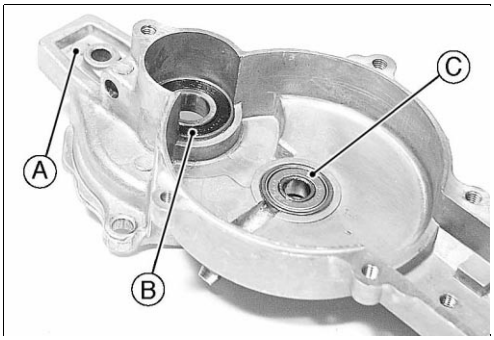
Reassembly Procedure

Bearing and Nipple Installation on Upper Case

● On the upper gear case [A], press-fit the ball bearings 6001RS [B] and 608ZL [C] and install the grease nipple.

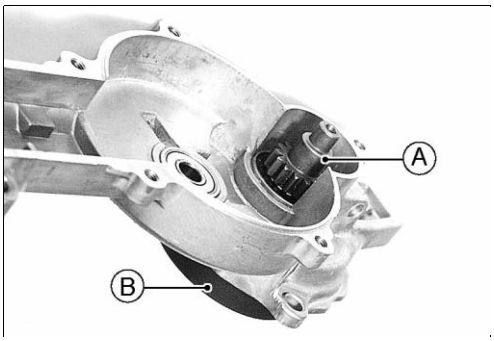
NOTE

○ *The stamped side of the ball bearing must be visible.*



Clutch Drum Installation

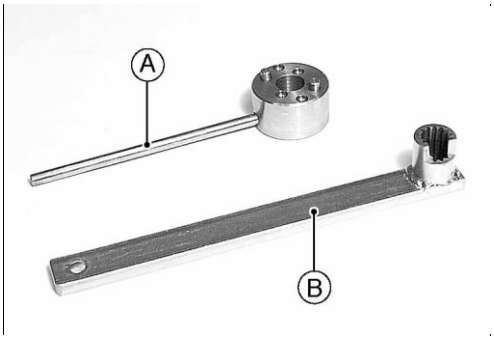
● Insert the threaded side of the gear [A] into the ball bearing 6001RS and tighten the clutch drum [B] from above. At this time, apply a non-permanent locking agent on the threads of the clutch drum [B].



NOTE

○ *Use two types of special tools to tighten the clutch drum.*

Special Tools - Socket Wrench: 57001-1418 [A]
Gear Holder: 57001-1424 [B]



CAUTION

The socket wrench (special tool) must be used by ensuring that its two protrusions engage completely with the clutch drum. The gear holder (special tool) must make full contact with the gear.

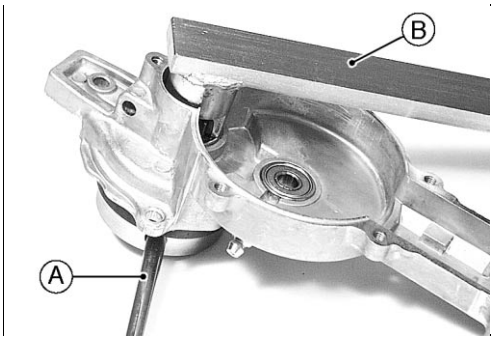
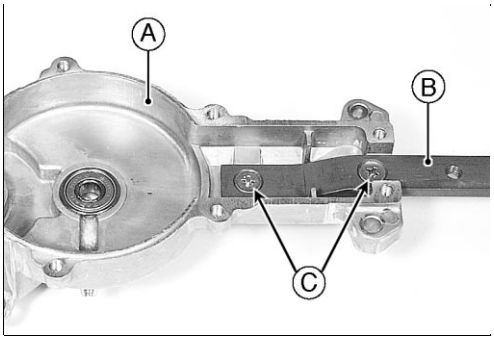


Plate Installation

● Install the plate [B] on the upper gear case [A] and tighten the two 5 x 20 screws [C] to the specified torque.

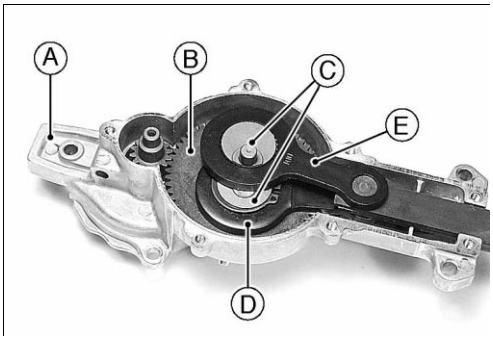
Torque - 4.0 ~ 5.0 N·m (0.4 ~ 0.5 kg·m)



Reassembly Procedure

Cutter and Rod Installation

- Insert the gear [B] into the ball bearing 608ZL of the upper gear case [A]. Then, on the cam [C] of the gear [B], install in sequence the cutter rods on which the upper cutter [D] and the lower cutter [E] are fitted.
- After the installation, apply grease to the gear and the cutter rods.



NOTE

1. *Apply approximately 50g of grease.*
2. *Use the special tool for installing the snap ring.*
3. *Orient the rod so that the recessed side of the rod faces inward.*

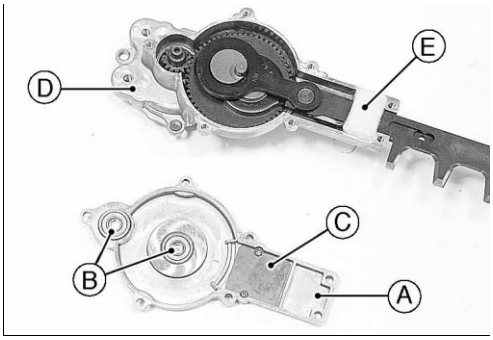
Special Tool - Circlip Pliers: 57001-154

⚠WARNING

Cutter blades can cause severe injury. Wear gloves to protect the hands when handling the cutter blades.

Bearing Installation on Lower Case

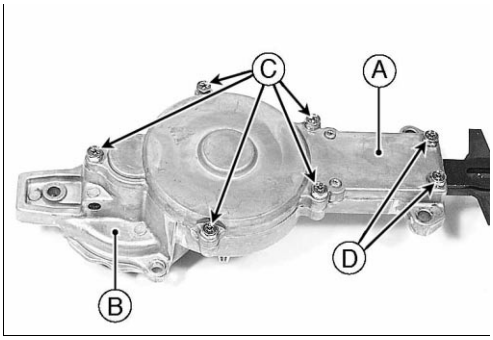
- On the lower gear case [A], press-fit the ball bearing 608ZL [B] and tighten the two 3 x 5 screws to install the rod plate [C].
- Then, install the seal [E] in the upper gear case [D].



Upper and Lower Case Installation

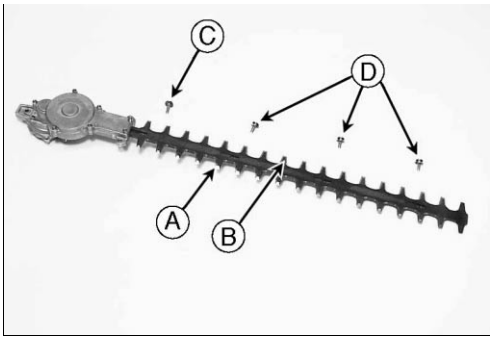
- Tighten the five 5 x 16 bolts [C] and the two 5 x 16 bolts [D] to the specified torque to install the lower gear case [A] on the upper gear case [B].

Torque - 4.0 ~ 5.0 N·m (0.4 ~ 0.5 kg·m)



Cutter Adjustment Screw Installation and Clearance Adjustment

- Place the upper cutter [A] and the lower cutter [B] together. Insert one L = 22 mm screw with washer [C] into the hole through both cutters at the gear case side, and the three L = 19 mm screws [D] at the cutter end, and lightly tighten them against the plate.
- Next, back off the screws 1/4 to 1/2 turns to adjust the cutter clearance. (Blade clearance: 0.3 ~ 0.4 mm)

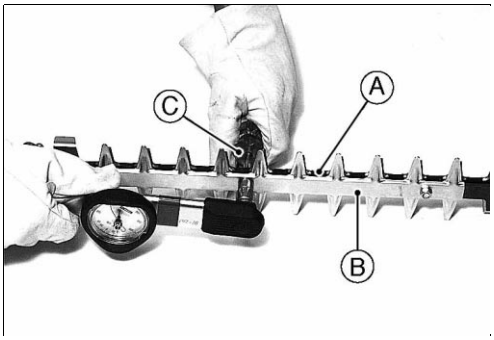


Reassembly Procedure

Cutter Adjustment Screw Tightening

- Place the blade guard [B] on the plate [A]. Use the driver [C] to support the four screws of the plate [A]. Then, tighten the four M6 nuts to the specified torque. Place the plate over the single bolt on the gear case side and tighten it together.

Torque - 11 ~ 14 N·m (1.1 ~ 1.4 kg·m)



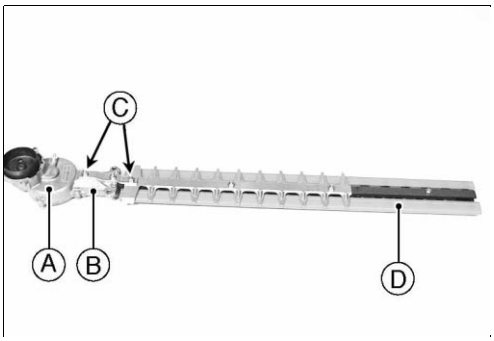
NOTE

○ *After tightening the screws, make sure that the cutter moves smoothly.*

Plate Installation

- Tighten the two M5 nuts [C] to the specified torque to install the plate [B] on the upper gear case [A].

Torque - 4.0 ~ 5.0 N·m (0.4 ~ 0.5 kg·m)



⚠WARNING

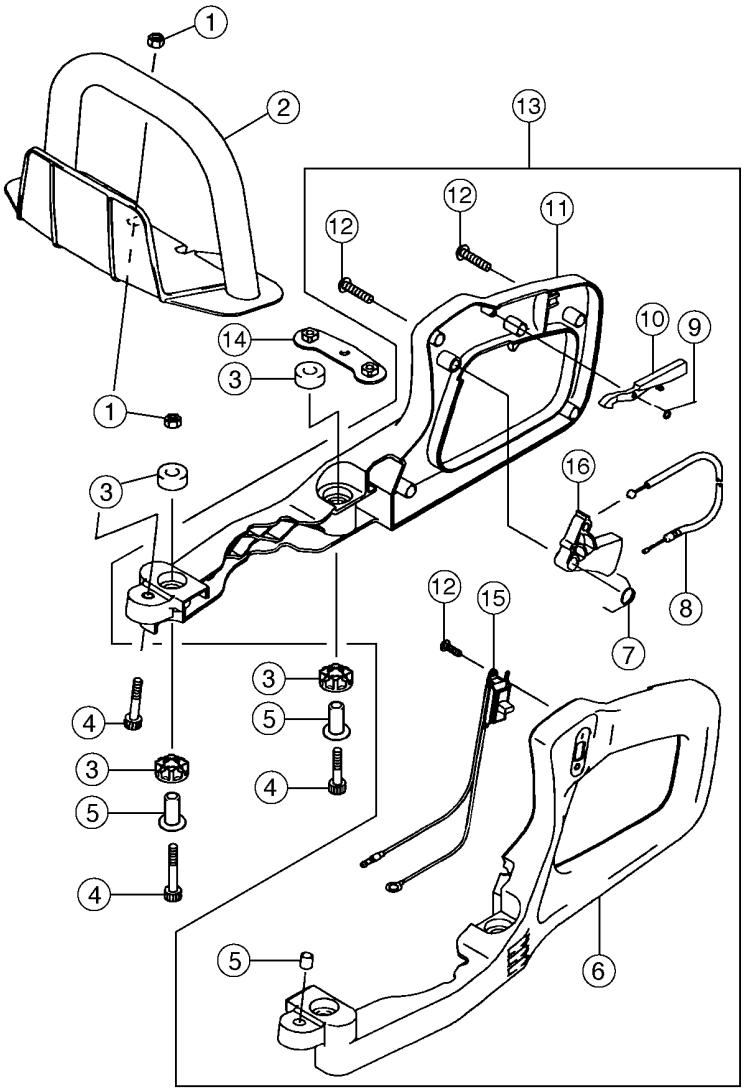
Before tightening the nuts on the plate, make sure to install the cutter guard [D].

2-8 KHD600A

Reassembly Procedure

Handle Assembly Installation Procedure

Exploded View

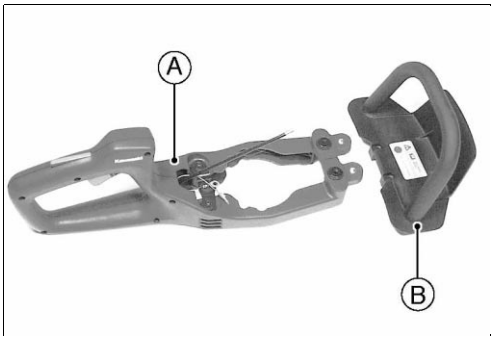


1. Nut
2. Front Handle
3. Damper
4. Allen Bolt
5. Collar
6. Rear Handle, LH Half
7. Return Spring
8. Throttle Cable
9. Spring
10. Set Lever
11. Rear Handle, RH Half
12. Screw
13. Rear Handle Assembly
14. Bracket
15. Engine Switch
16. Throttle Lever

Reassembly Procedure

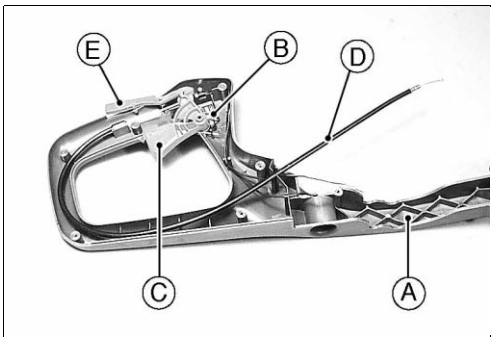
Handle Assembly Installation

The handle assembly consists of the rear [A] and front [B] portions.



Rear Handle Assembly Installation

- Install the following parts onto the left body [A]:
  - Tighten the switch [B] using two 3 x 10 screws.
  - Install the throttle lever [C] with the throttle cable [D] fitted. At the same time, fit the return spring in the throttle lever to enable the lever's return operation.
  - Install the stop lever [E]. At the same time, enable the spring's return operation.



NOTE

- *Fit the outer tip of the throttle cable into the body receptacle and route the throttle cable outward through the inside of the case.*

CAUTION

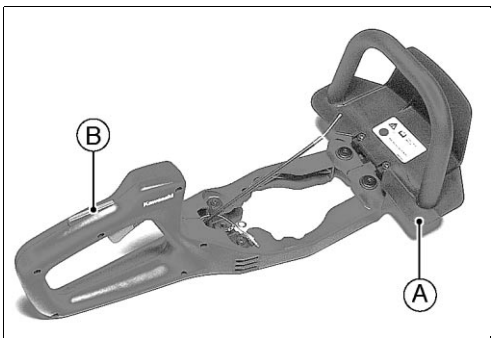
Route the switch lead wires so as not to cause an open or short circuit, as this could prevent the engine from starting or stopping. Pull out the black/white lead wire upward and the black lead wire downward.

- Mate the right body with the left body and tighten them with six 4 x 18 screws

Front Handle Installation on Rear Handle Assembly

- Install the front handle assembly [A] on the rear handle assembly [B] and tighten the two Allen bolts and nuts to the specified torque.

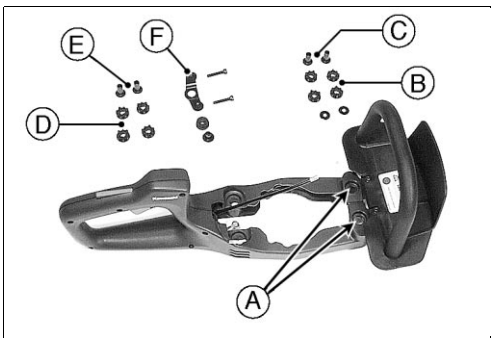
Torque - 6.0 ~ 8.0 N·m (0.6 ~ 0.8 kg·m)



Damper and Collar Installation and Bracket Installation

- Insert the four upper and lower dampers [B] and the two collars [C] into the front gear case mounting area [A] of the rear handle assembly.
- Then, insert the four upper and lower dampers [D] and the two collars [E] into the rear mounting area, and tighten the Allen bolts to the bracket [F] at the specified torque.
- Also install the dampers and collars to the center of the bracket [F].

Torque - 6.0 ~ 8.0 N·m (0.6 ~ 0.8 kg·m)



NOTE

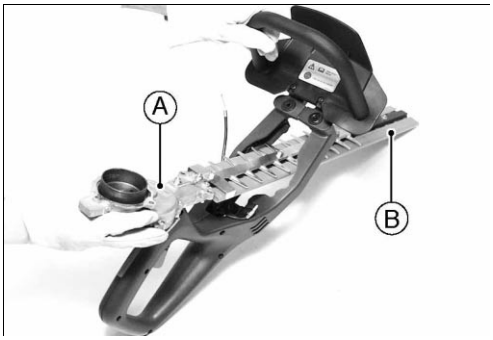
- *Install the bracket [F] with its protruded portion facing rearward.*

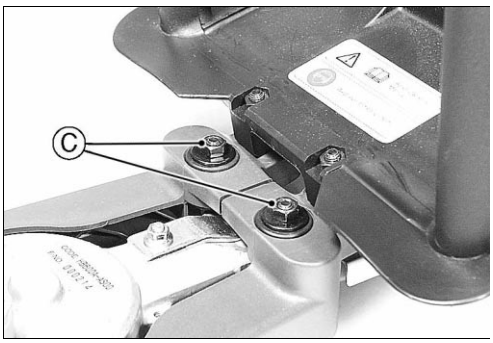
Reassembly Procedure

Handle Assembly Installation on Gear Case

- Starting with the blade [B], pass the gear case [A] through the center hole of the handle assembly to install it on the handle assembly.
- Place the washers on the upper dampers of the front mounting area and tighten them with the two Allen bolts and nuts [C] to the specified torque.

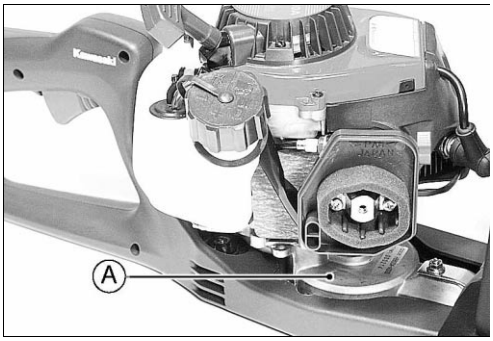
Torque - 6.0 ~ 8.0 N·m (0.6 ~ 0.8 kg·m)





Engine Assembly Installation

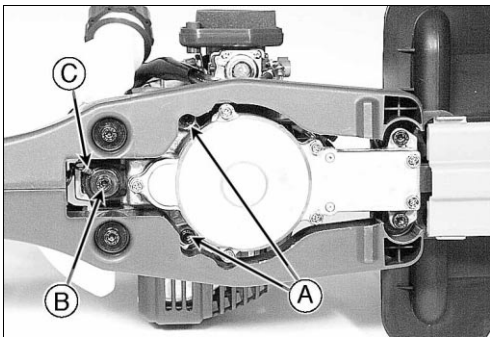
- Cable installation and adjustment
- ○ Connect the handle assembly cable to the carburetor of the engine; then install the engine on the complete case [A].
- ○ After installing the engine, route the cable through the inside of the tank.
- ○ After assembling the engine, adjust the cable play to enable the carburetor throttle to effect idling and wide-open-throttle through the operation of the throttle lever of the handle assembly. After the adjustment, tighten the lock nut and verify that the throttle lever of the handle assembly operates smoothly.



Engine Installation

- Tighten the two 6 x 16 Allen bolts [A] and one 6 x 40 Allen bolt [B] to the speified torque.
- Tighten the ground terminal [C] together with the rear mounting area.

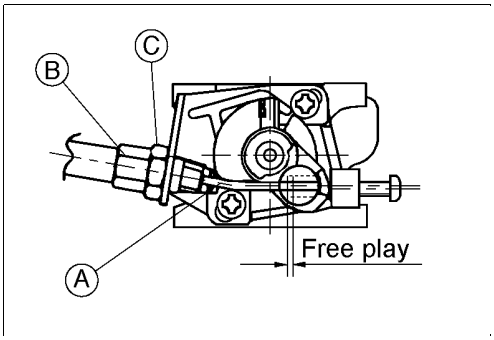
Torque - 6.0 ∼ 8.0 N·m (0.6 ∼ 0.8 kg·m)



Reassembly Procedure

Throttle Cable Free Play Adjustment

- After the throttle cable [A] has been connected to the carburetor, place the throttle lever at its idle position. Then, adjust the free play of the throttle cable [A] to about 1 mm (0.04 in) by turning the adjuster [B] with the loop handle installed in place.
- Tighten the lock nut [C] to prevent the adjuster [B] from loosening.



KHS750A

Table of Contents

Disassembly Procedure

⚠WARNING

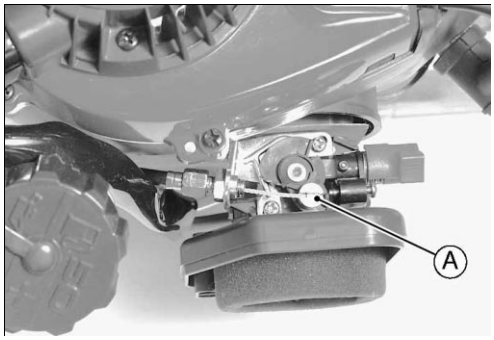
Cutter blades can cause severe injury. Wear gloves to protect the hands when handling the cutter blades

⚠WARNING

Perform a disassembly operation only after stopping the engine and draining the gasoline from the fuel tank. Exercise extreme caution to prevent burns or fire.

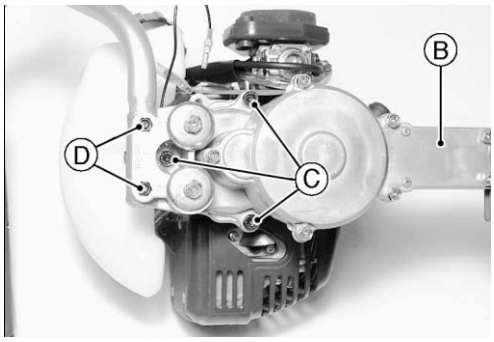
Engine Assembly Removal

- Remove the air filter cap and remove the cable from the carburetor arm [A].
- Also remove the positive (+) lead for the switch from the terminal.
- Then, remove the three Allen bolts [C] from the gear case [B], and detach the engine from the body.



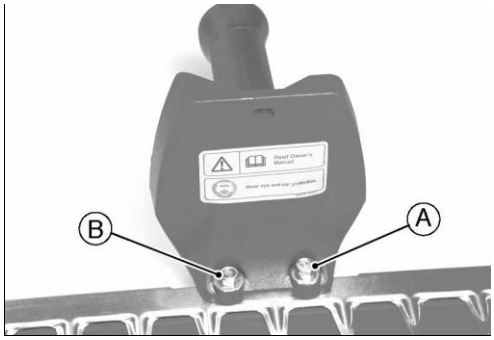
Rear Handle Removal

- Remove the two Allen bolts [D] from the rear handle and remove the rear handle from the gear case.



Front Handle Removal

- Remove the one 6 x 20 bolt [A] and the one M6 nut [B] from the front handle and remove the front handle from the plate cutter.

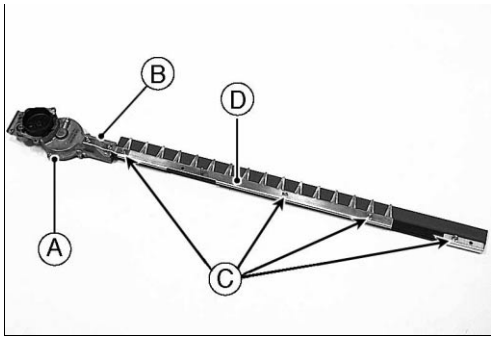


Gear Case and Cutter Removal

- Remove the two M5 nuts from the plate [B] of the upper gear case [A].
- Remove the four M6 nuts [C] for the cutter adjustment screws to detach the plate [B] and the blade guard [D] from the body.

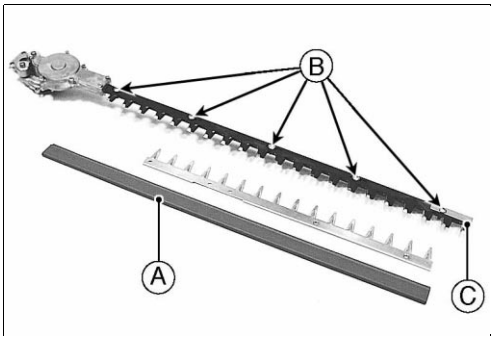
⚠WARNING

Cutter blades can cause severe injury. Wear gloves to protect the hands when handling the cutter blades.



Disassembly Procedure

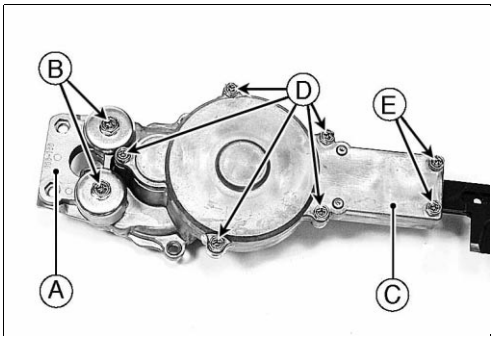
- Remove the cutter guard [A], and the five screws and washers [B] that are used for mounting the cutter.
- Remove also the top guard [C].



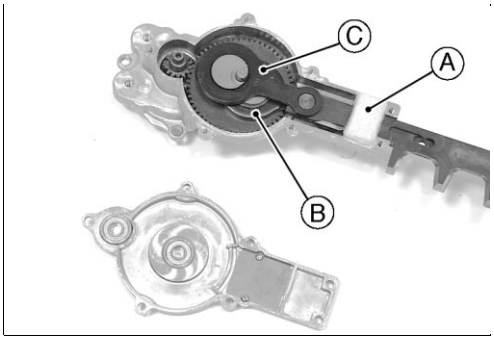
⚠WARNING

After removing the screws, make sure to install the cutter guard to prevent injury from the cutter blades.

- To remove the handle mounting bracket [A], remove the washers, dampers, and collars together with the two 5 x 35 bolts [B].
- Remove the five 5 x 16 bolts [D] and the two 5 x 16 bolts [E] from the lower gear case [C] to remove the lower gear case [C] from the upper gear case.



- Remove the seal [A] and the cutter rod to remove the cutter guard; then, remove the upper [B] and lower [C] cutters.
- Using the special tool, remove the snap ring to remove the cutter rod (Refer to the section for KHD600A).
- Then, remove the large and small gears from the upper gear case.



CAUTION

The cutter rod contains 30 rollers. Make sure not to lose them during disassembly. If any roller has been lost, the cutter rod must be replaced as an assembly.

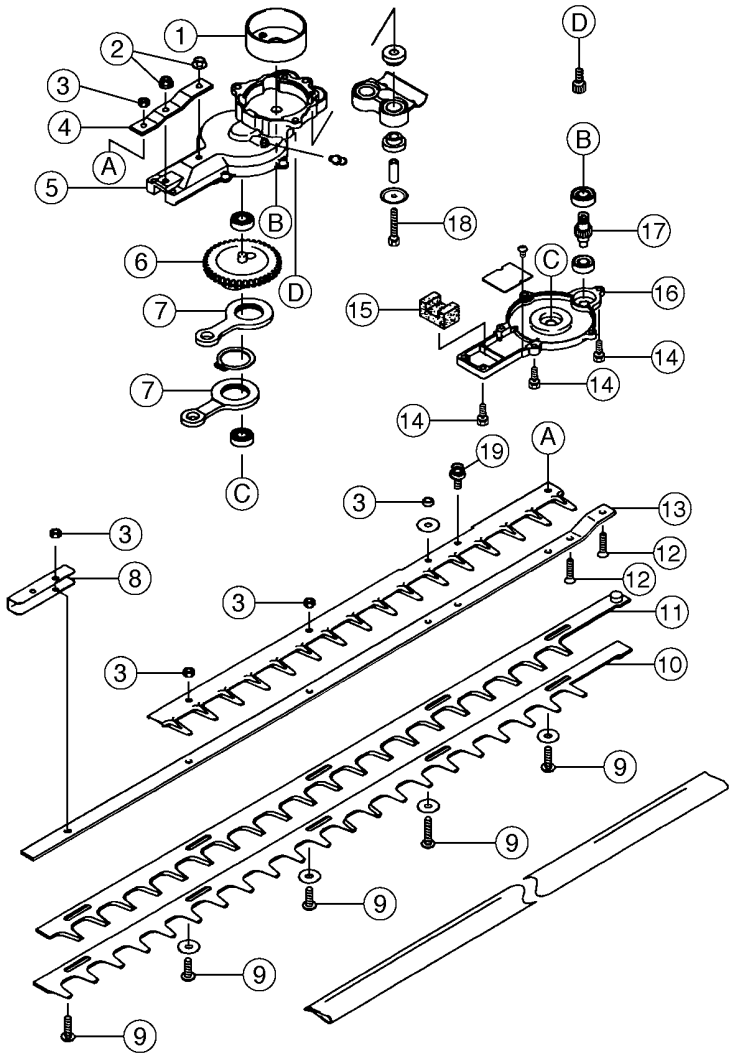
- Remove the clutch drum.
- Place the special tools against the clutch drum and the gear. Use a hammer to lightly tap counterclockwise on the special tool that is placed against the clutch drum, thus removing the drum (Refer to the section for KHD600A).

3-4 KHS750A

Reassembly Procedure

Gear Case and Cutter Installation Procedure

Exploded View



1. Clutch Drum
2. Reinfor Plate Nuts
3. Locknuts
4. Reinforce Plate
5. Upper Gear Case
6. Cam Gear
7. Con-Rods with Needle Rollers
8. Guard
9. Cutter Blade Guide Screws
10. Lower Cutter Blade (Long)
11. Upper Cutter Blade (Short)
12. Guide Plate Mounting Screws
13. Guide Plate
14. Gear Case Bolts
15. Felt Seal
16. Lower Gear Case
17. Pinion Gear
18. Rear Handle Mounting Bolts
19. Front Handle Mounting Bolt

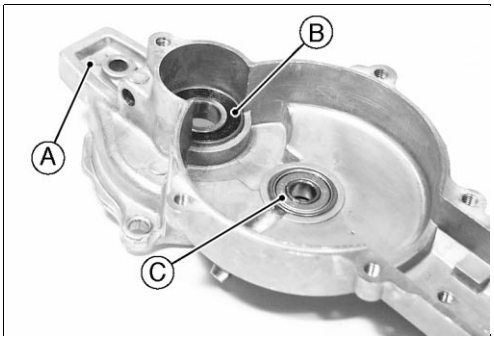
Reassembly Procedure

Bearing and Nipple Installation on Upper Case

● On the upper gear case [A], press-fit the ball bearings 6001RS [B] and 608ZL [C] and install the grease nipple.

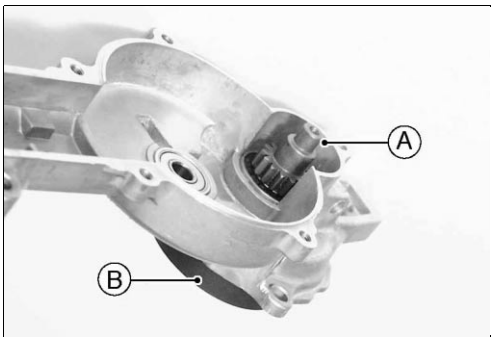
NOTE

○ *The stamped side of the ball bearing must be visible.*



Clutch Drum Installation

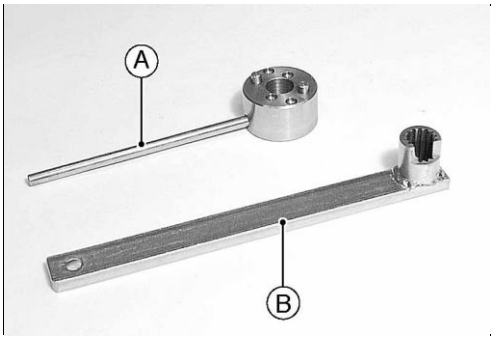
● Insert the threaded side of the gear [A] into the ball bearing 6001RS and tighten the clutch drum [B] from above. At this time, apply a non-permanent locking agent on the threads of the clutch drum [B].



NOTE

○ *Use two types of special tools to tighten the clutch drum.*

Special Tools - Socket Wrench: 57001-1418 [A]
Gear Holder: 57001-1424 [B]



CAUTION

The socket wrench (special tool) must be used by ensuring that its two protrusions engage completely with the clutch drum. The gear holder (special tool) must make full contact with the gear.

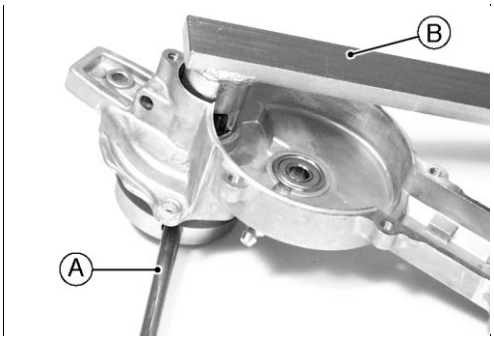
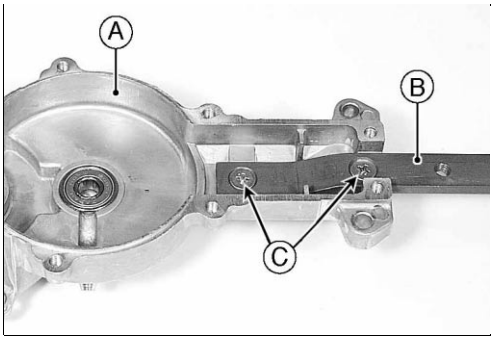


Plate Installation

● nstall the plate [B] on the upper gear case [A] and tighten the two 5 x 20 screws [C] to the specified torque.

Torque - 4.0 ~ 5.0 N·m (0.4 ~ 0.5 kg·m)



Reassembly Procedure

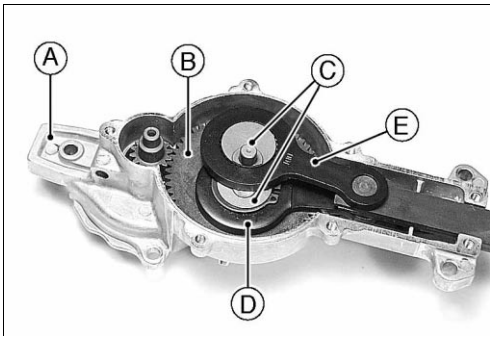
Cutter and Rod Installation

- Insert the gear [B] into the ball bearing 608ZL of the upper gear case [A]. Then, on the cam [C] of the gear [B], install in sequence the cutter rods on which the upper cutter [D] and the lower cutter [E] are fitted.
- After the installation, apply grease to the gear and the cutter rods.

NOTE

- *Apply approximately 50g of grease.*
- *Use the special tool for installing the snap ring.*
- *Orient the rod so that the recessed side of the rod faces inward.*

Special Tool - Circlip Pliers: 57001-154

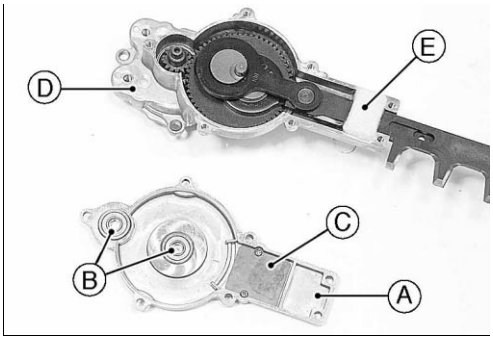


⚠WARNING

Cutter blades can cause severe injury. Wear gloves to protect the hands when handling the cutter blades.

Bearing Installation on Lower Case

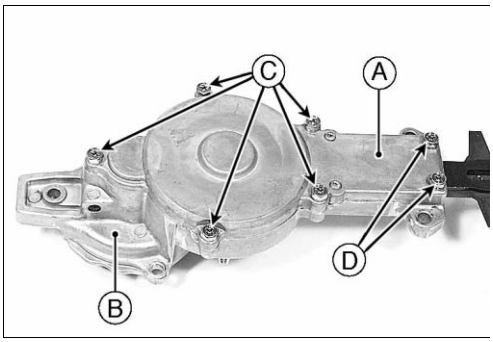
- On the lower gear case [A], press-fit the ball bearing 608ZL [B] and tighten the two 3 x 5 screws to install the rod plate [C].
- Then, install the seal [E] in the upper gear case [D].



Upper and Lower Case Installation

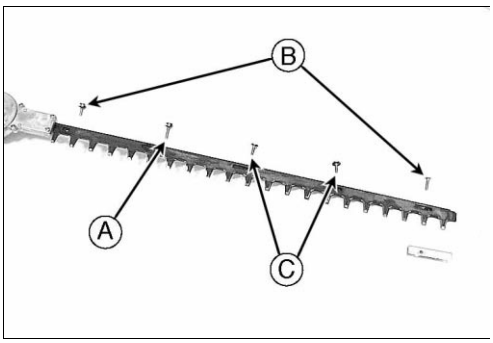
- Tighten the five 5 x 16 bolts [C] and the two 5 x 16 bolts [D] to the specified torque to install the lower gear case [A] on the upper gear case [B].

Torque - 4.0 ~ 5.0 N·m (0.4 ~ 0.5 kg·m)



Cutter Adjustment Screw Installation and Clearance Adjustment

- Place the upper cutter [A] and the lower cutter [B] together. Then, from the gear case side, insert the one L=29 mm screw [A], the two L=22 mm screws [B], and the two L=19 mm screws [C] through the cutter holes (in the following sequence: L=22 mm, L=29 mm, L=19 mm, L=19 mm, and L=22 mm) and tighten them lightly against the plate.
- Tighten the L=22 mm screw at the tip together with the top guard.
- The screw at the tip (tightened together with the top guard) does not require a washer. The remaining four screws require washers.
- Next, back off the screws 1/4 to 1/2 turns to adjust the cutter clearance (Blade clearance: 0.3 ~ 0.4 mm).

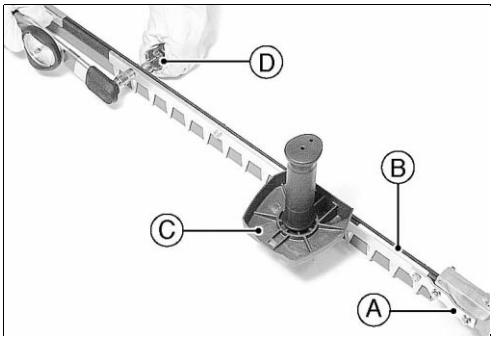


Reassembly Procedure

Cutter Adjustment Screw Tightening

- Place the blade guard [B] on the plate [A]. Install the front handle [C] on the longest L=29 mm screw, and tighten it with the 6 x 20 bolt to the specified torque.
- Then, use the driver [D] to support the five screws of the plate [A].
- Then, tighten the five M6 nuts to the specified torque. Place the plate over the single bolt on the gear case side and tighten it together.

Torque - Tightening torque for (five) nuts: 11 ~ 14 N·m (1.1 ~ 1.4 kg·m)
Tightening torque for (one) bolt: 4.0 ~ 5.0 N·m (0.4 ~ 0.5 kg·m)



NOTE

○ *After tightening the screws, make sure that the cutter moves smoothly.*

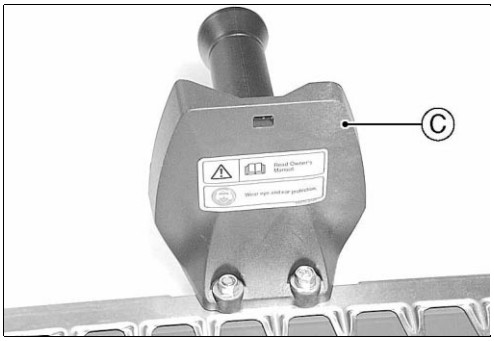
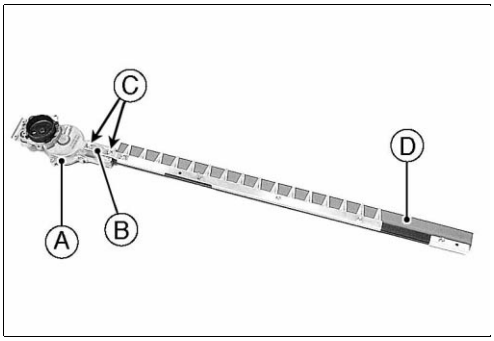


Plate Installation

- Tighten the two M5 nuts [C] to the specified torque to install the plate [B] on the upper gear case [A].

Torque - 4.0 ~ 5.0 N·m (0.4 ~ 0.5 kg·m)



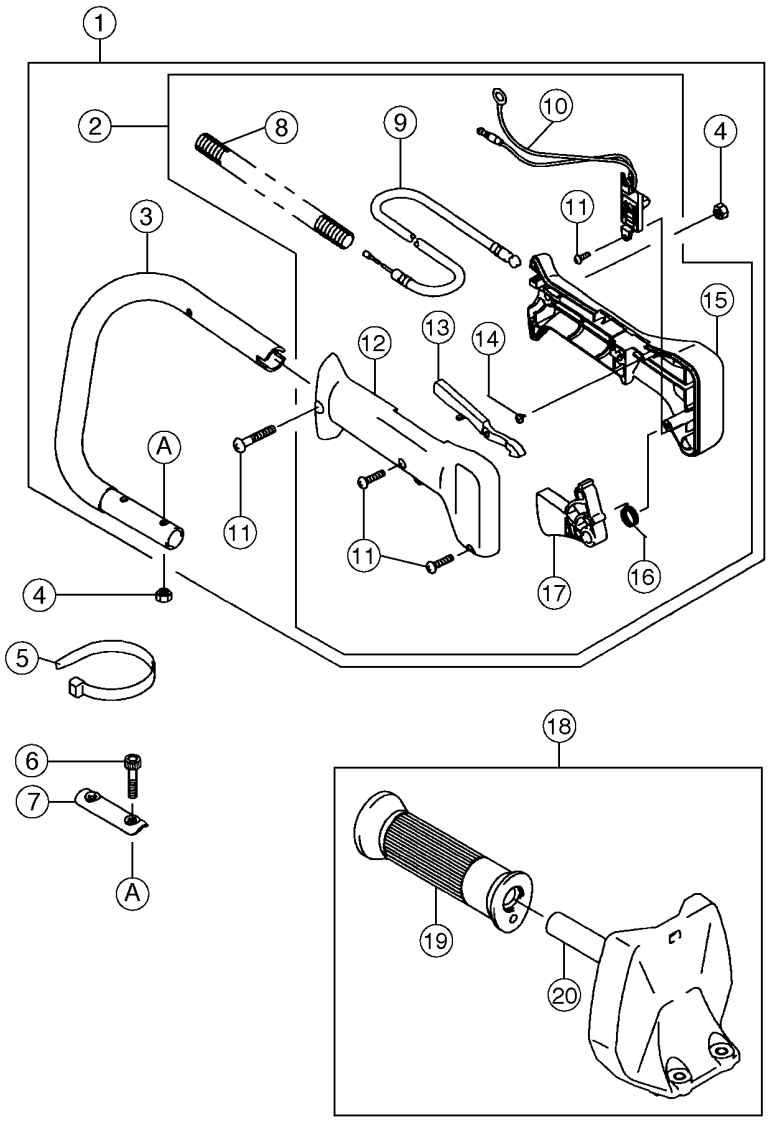
CAUTION
Before tightening the nuts on the plate, make sure to install the cutter guard [D]

3-8 KHS750A

Reassembly Procedure

Handle Assembly Installation Procedure

Exploded View

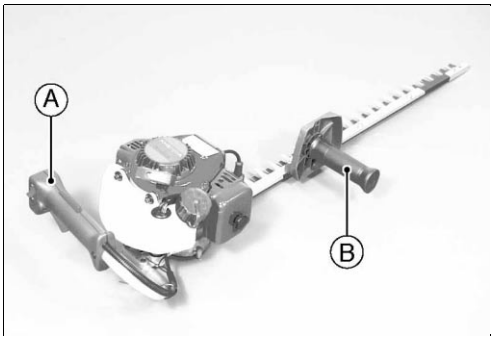


1. Rear Handle Assembly
2. Grip Assembly
3. Rear Handlebar
4. Nut
5. Band
6. Allen Bolt
7. Bracket
8. Tube
9. Throttle Cable
10. Engine Switch
11. Screw
12. Grip Body Half
13. Stop Lever
14. Spring
15. Grip Body Half
16. Return Spring
17. Throttle Lever
18. Front Handle Assembly
19. Grip
20. Front Handlebar

Reassembly Procedure

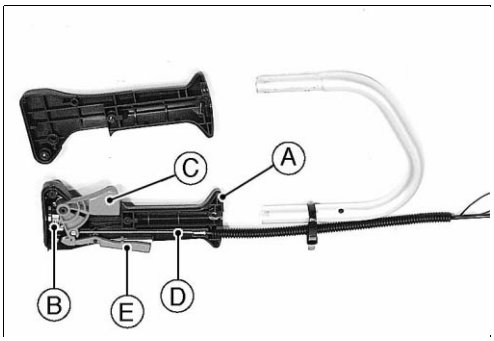
Handle Assembly Installation

The handle assembly consists of the rear [A] and front [B] portions.



Rear Handle Assembly Installation

- Install the following parts onto the left body [A]:
- Tighten the switch [B] using two 3 x 10 screws.
- Install the throttle lever [C] with the throttle cable [D] fitted. At the same time, fit the return spring in the throttle lever to enable the lever's return operation.
- Install the stop lever [E]. At the same time, enable the spring's return operation.



NOTE

- *Fit the outer and inner tips of the throttle cable to the specified locations.*

CAUTION

Route the switch lead wires so as not to cause an open or short circuit, as this could prevent the engine from starting or stopping. Fit the lead wire into the lead guide, insert it into the tube, and pull it out together with the throttle cable.

- Mate the right body with the left body and tighten them with the three screws.

Front Handle Installation

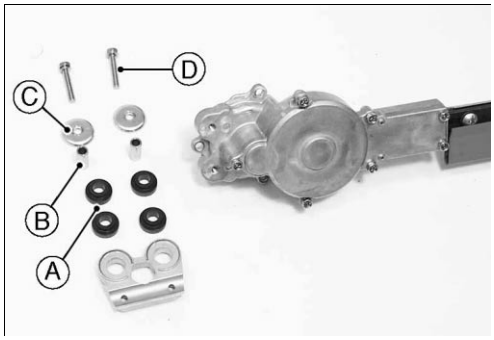
- Refer to the previous section on "Cutter Adjustment Screw Tightening".

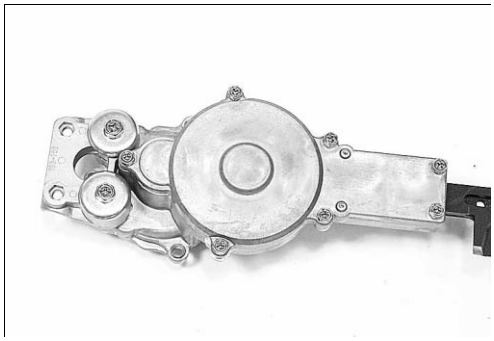
Reassembly Procedure

Rear Handle Mounting Bracket Installation

● Insert the damper [A] and the collar [B] into the damper hole, and via the plate [C], tighten the bolt [D] to the specified torquie.

Torque - 4.5 ∼ 5.0 N·m (0.4 ∼ 0.5 kg·m)





Engine Assembly Installation

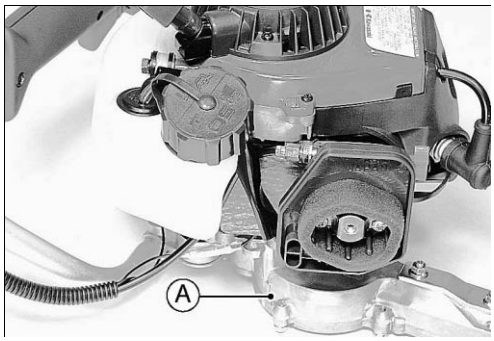
Cable Installation and Adjustment

● Connect the handle assembly cable to the carburetor of the engine; then install the engine on the complete case [A].

○ After installing the engine, route the cable through the inside of the tank.

○ After assembling the engine, adjust the cable play to enable the carburetor throttle to effect idling and wide-open-throttle the operation of the throttle lever of the handle assembly.

○ After the adjustment, tighten the lock nut and verify that the throttle lever of the handle assembly operates smoothly.

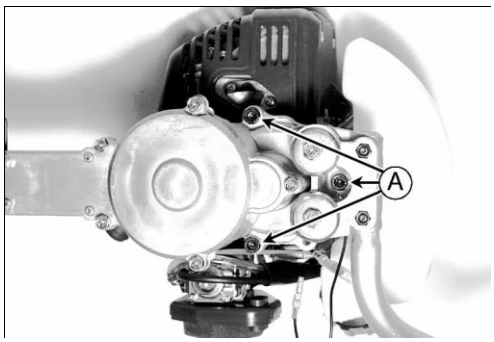


Engine Installation

● Tighten the three 6 x 16 Allen bolts [A] to the specified torque.

● Tighten the ground terminal together with the rear mouonting area.

Torque - 6.0 ~ 8.0 N·m (0.6 ~ 0.8 kg·m)



Reassembly Procedure

Throttle Cable Free Play Adjustment

- After the throttle cable [A] has been connected to the carburetor, place the throttle lever at its idle position. Then, adjust the free play of the throttle cable [A] to about 1 mm (0.04 in) by turning the adjuster [B] with the loop handle installed in place.
- Tighten the lock nut [C] to prevent the adjuster [B] from loosening.