

ENGINE

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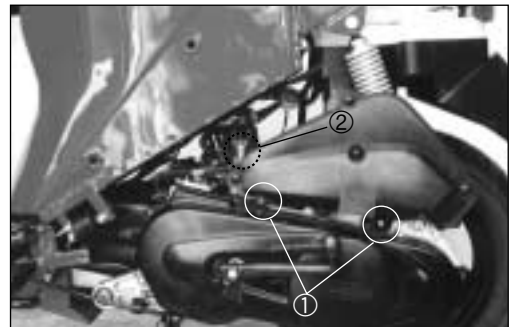
3-1 ENGINE

ENGINE REMOVAL AND REMOUNTING

ENGINE REMOVAL

Before taking the engine out of the frame, thoroughly clean the engine with a suitable cleaner. The procedure of engine removal is sequentially explained as follows.

- Remove the frame side covers. (Refer to page 6-3)
- Remove the air cleaner by removing the mounting bolts and clamp screw.



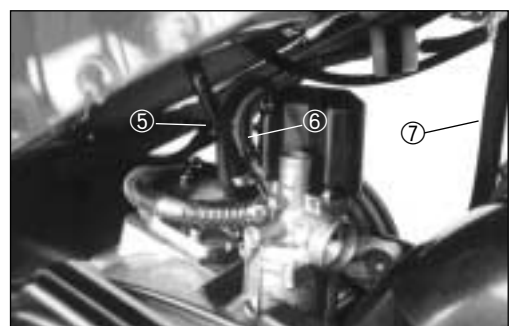
- Disconnect the ignition coil lead wires and spark plug cap.



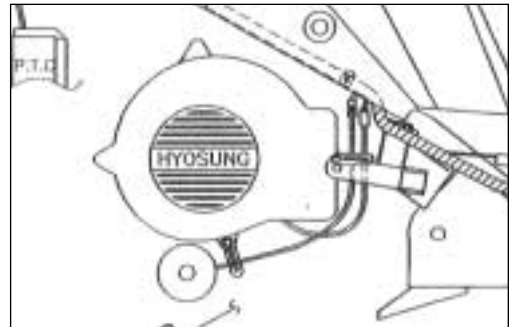
- Disconnect the oil pump cable (3) and the thermoelement lead coupler (4).
- Disconnect the throttle cable. (Refer to page 4-2)



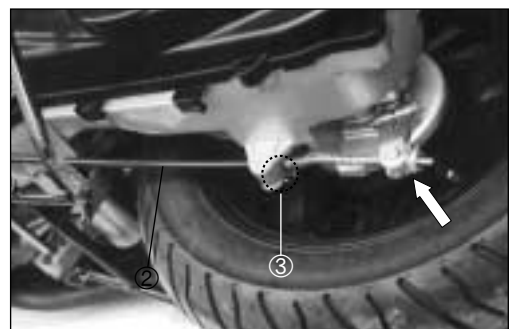
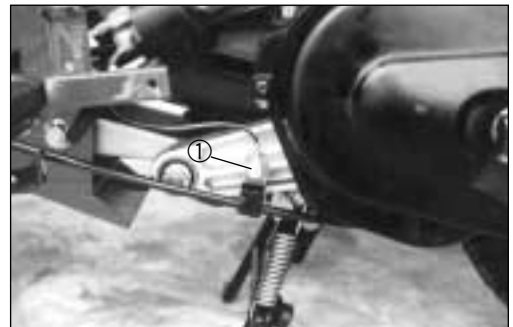
- Disconnect the carburetor hoses and oil hose.
Vacuum hose (5).
Fuel hose (6).
Oil hose (7).



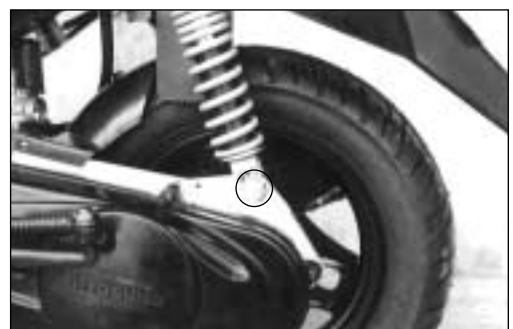
- Disconnect the magneto lead wire and starter lead wire.



- Remove the rear brake cable ② by removing the bolt ①, bolt ③ and adjuster nut.



- Remove the rear shock absorber mounting lower bolt.



- Remove the engine mounting shaft and remove the engine from the frame.

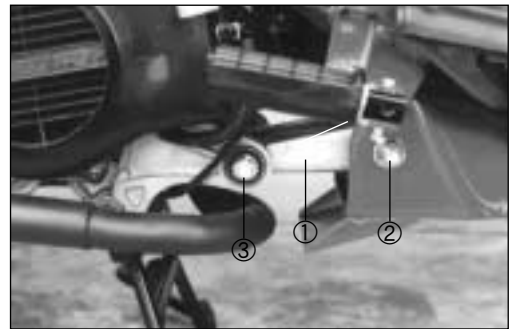
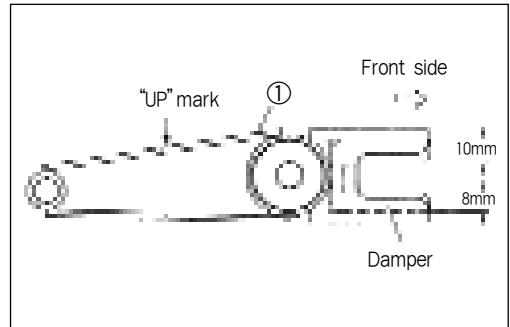


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ENGINE REMOUNTING

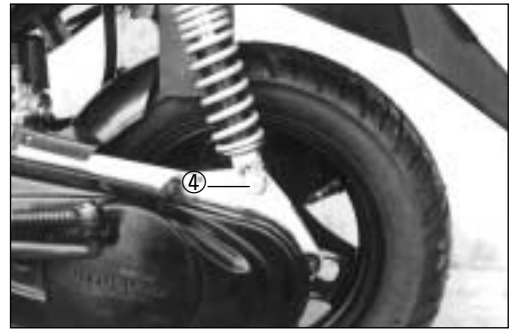
The engine can be mounted in the reverse order of removal.

- Install the damper to the crankcase bracket as shown in the illustration.
- With "UP" mark faced upward, install the crankcase bracket ① on the frame. Do not tighten the bracket bolt ② at this stage. Pull up on the rear part of crankcase bracket and while holding it, tighten the bracket bolt ② to specification. Tighten both the rear shock absorber bolt ④ and engine mounting bolt ③ to specification.

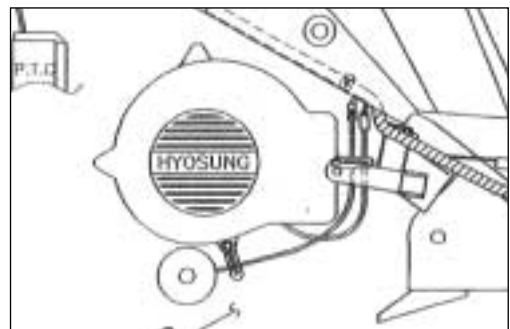


Tightening torque

	N · m	kg · m	lb-ft
②	48-72	4.8-7.2	34.5-52.0
③	40-60	4.0-6.0	29.0-43.5
④	20-30	2.0-3.0	14.5-21.5



- Install the magneto lead wire and starter motor lead wire correctly.



After remounting the engine, route the wiring harness properly (Refer to page 6) and following adjustments are necessary.

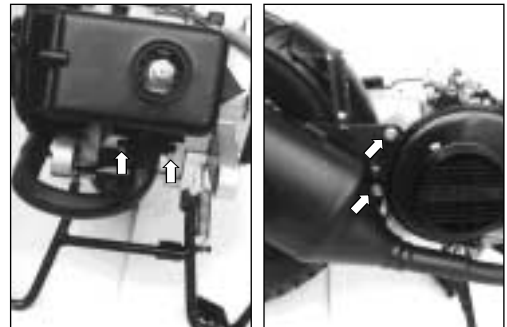
	Page
• Throttle cable play	2-5
• Idling adjustment	2-5
• Oil pump cable paly	2-6
• Rear brake cable adjustment	2-9
• Air bleeding at oil pump	4-8



ENGINE DISASSEMBLY

MUFFLER

- Remove the muffler by removing the bolts and nuts.



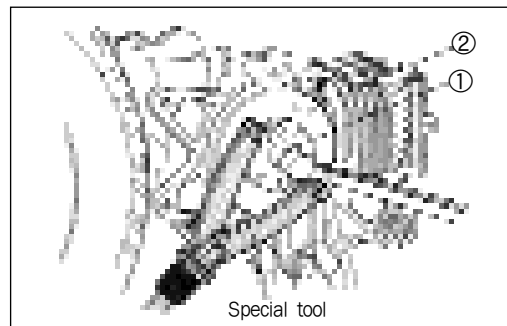
MAGNETO

- Remove the cooling fan.
- Remove the magneto rotor nut ① with the special tool.

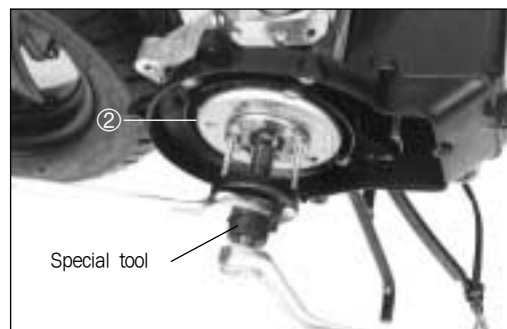
09930-40113	Rotor holder
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- Remove the magneto rotor with the special tool.

09930-30163	Rotor remover
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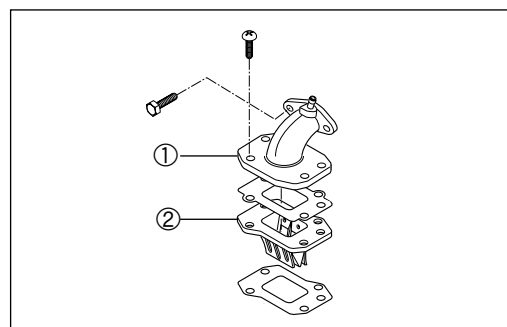


- Remove the magneto stator and key.



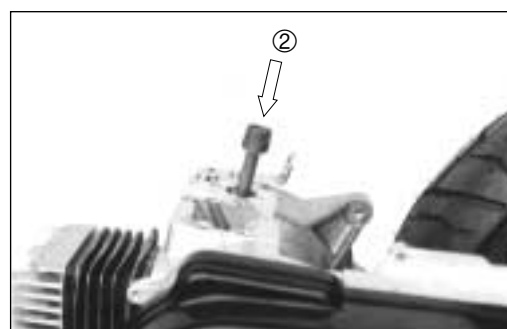
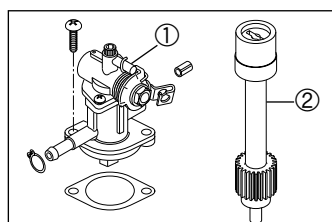
REED VALVE

- Remove the intake pipe ① with reed valve.



OIL PUMP

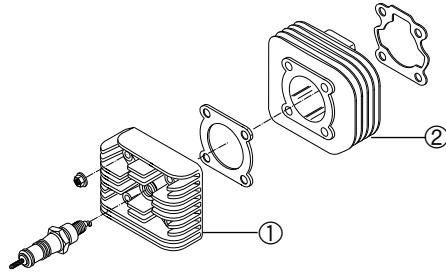
- Remove the oil pump ①.
- Remove the oil pump driven gear ②.



3-5 ENGINE

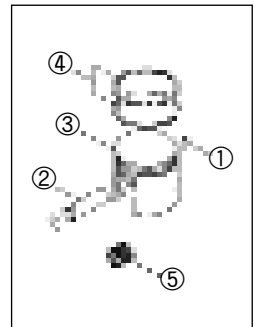
CYLINDER

- Remove the cylinder cowling.
- Remove the cylinder head ① and cylinder ②.



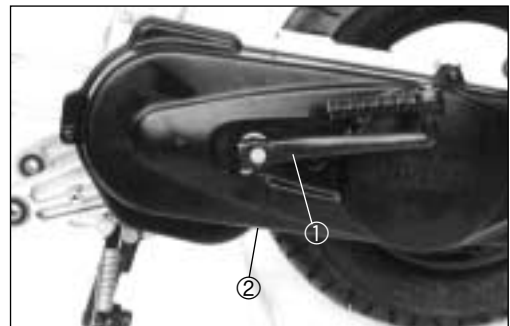
PISTON

- Place a cloth beneath the piston and remove the circlip ① with a pliers.
- Remove the piston pin ② and piston ③.
- Remove the piston pin bearing ⑤.

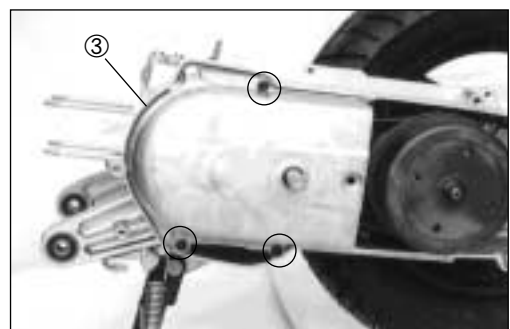


KICK STARTER

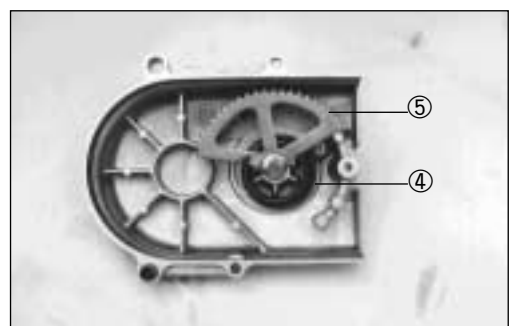
- Remove the kick starter lever ①.
- Remove the clutch cover ②.



- Remove the crankcase left cover ③.

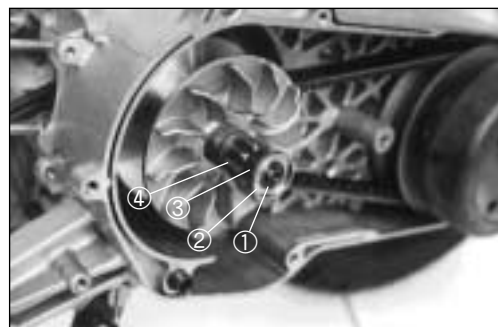


- Remove the kick starter shaft spring ④ and kick starter shaft ⑤.



KICK STARTER DRIVEN GEAR

- Remove the E-ring ① with the long nose plier.
- Remove the spacer ②, spring ③ and kick starter driven gear ④.

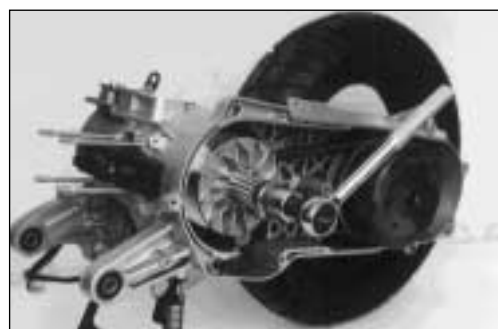


MOVABLE DRIVE FACE

- Remove the kick starter driven nut with the special tool.

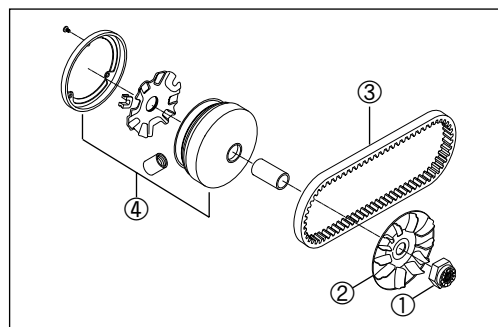
CAUTION:

This nut has left-hand thread.



09910-20115	Conrod holder
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- Remove the fixed drive face ② and V-belt ③.
- Disassemble the movable drive face ④.



STARTER DRIVEN GEAR

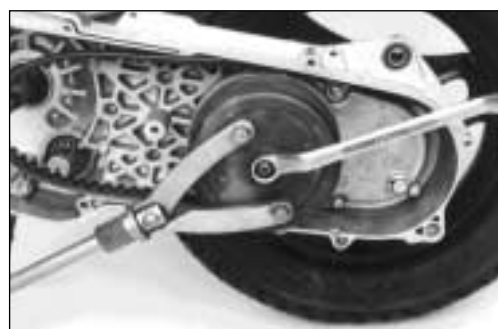
- Remove the starter driven gear ①.



MOVABLE DRIVEN FACE

- Remove the clutch housing with the special tool.

09930-40113	Rotor holder
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3-7 ENGINE

- Loosen the clutch shoe nut with the special tool.

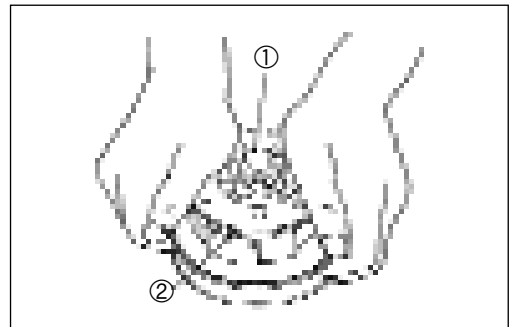
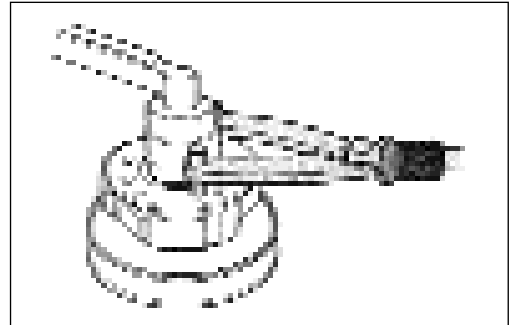
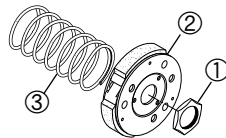
09930-40113	Rotor holder
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- Remove the nut while holding down the clutch shoe assembly by both hands as shown in the illustration.

WARNING:

Gradually back off the clutch shoe assembly pressed down by hand to counter the clutch spring load. Releasing the hand suddenly may cause the parts to fly apart.

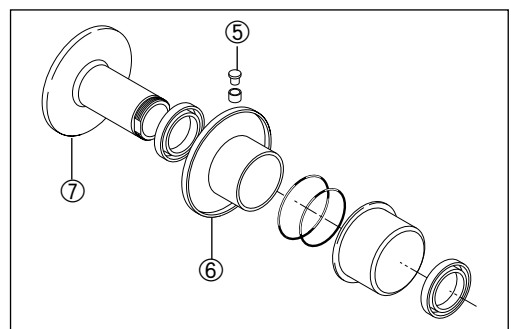
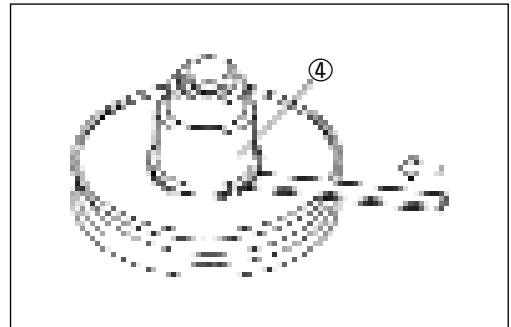
- ① Nut
- ② Clutch shoe assembly
- ③ Spring



CAUTION:

Do not attempt to disassemble the clutch shoe assembly. It is not serviceable.

- Using a thin blade screwdriver or the like, pry up the movable driven face spring guide (4).
- Remove the pins (5), movable driven face (6) and fixed driven face (7).



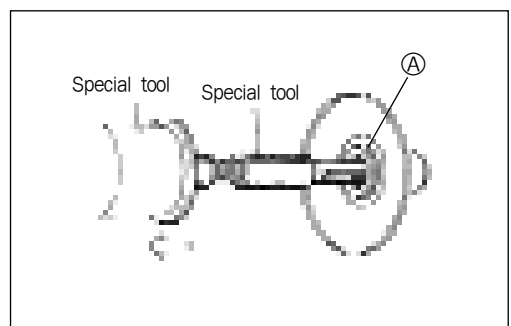
- Remove the roller bearing (A) with the special tools.

09923-73210	Bearing remover
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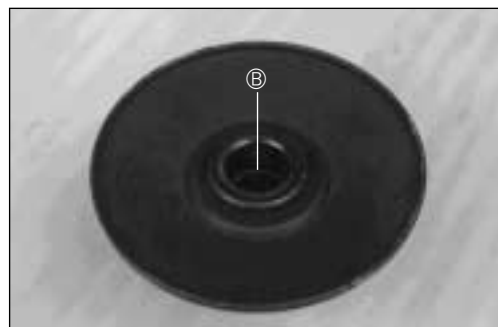
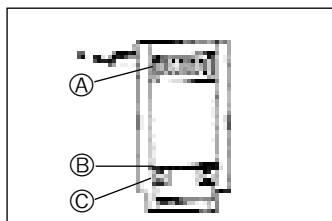
09930-30102	Sliding shaft
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CAUTION:

The removed bearing should be replaced with a new one.



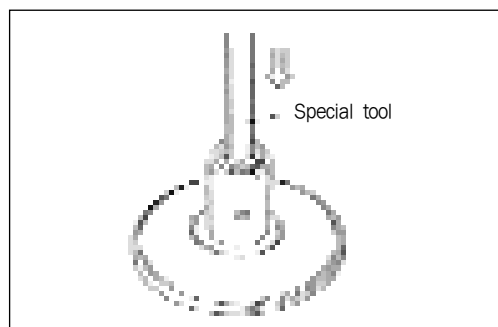
- Remove the circlip ②.



- Remove the bearing ③ with the special tool.

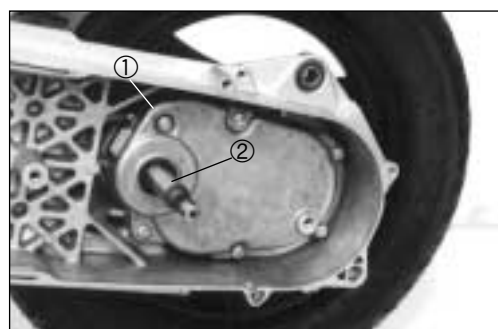
09941-50111	Wheel bearing remover
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CAUTION:
The removed bearing should be replaced with a new one.



TRANSMISSION

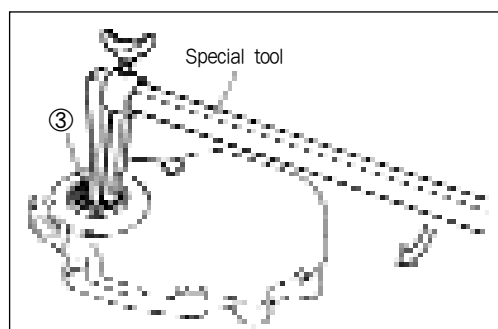
- Drain gear oil.
- Remove the gear box cover ①.
- Remove the driveshaft ②.



- Remove the oil seal ③ from the gear box cover with the special tool.

09913-50121	Oil seal remover
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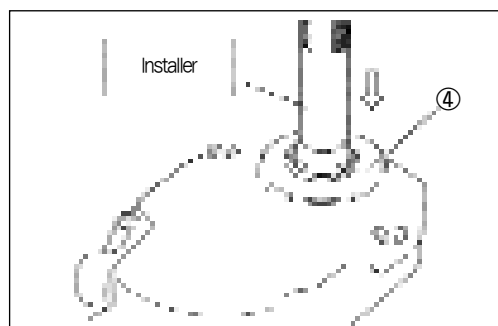
CAUTION:
The removed oil seal should be replaced with a new one.



- Remove the bearing ④ with the special tool.

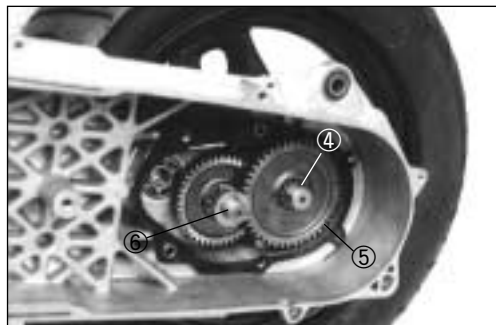
09943-88211	Bearing remover (Bearing installer)
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CAUTION:
The removed bearing should be replaced with a new one.



3-9 ENGINE

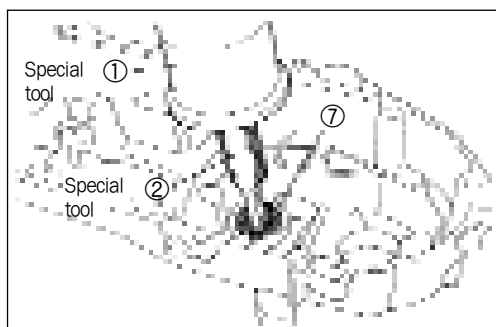
- Remove the circlip ④ and final driven gear ⑤.
- Remove the idle shaft ⑥.



- Remove the drive shaft bearing ⑦.

09930-30102	Sliding shaft
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09921-20210	Bearing remover
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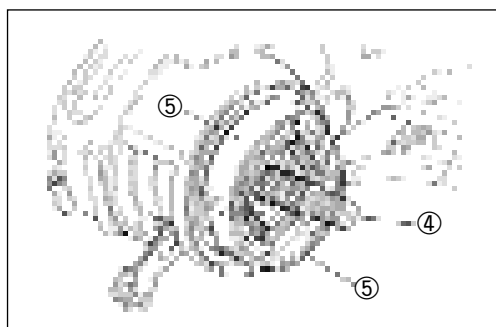


WHEEL, BRAKE

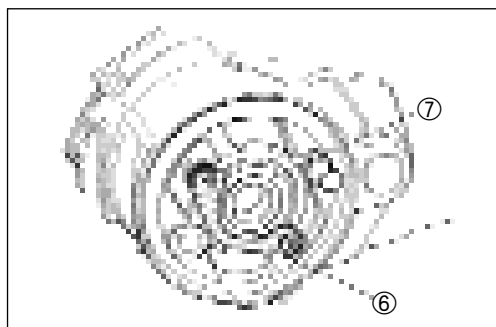
- Remove the rear axle nut ① and washer ②.
- Remove the rear wheel ③.



- Remove the brake shoes ⑤ and rear axle shaft ④.

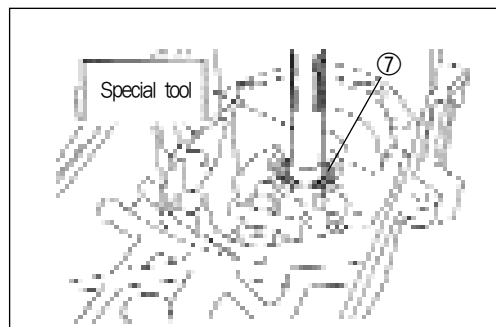


- Remove the bearing retainer ⑥.



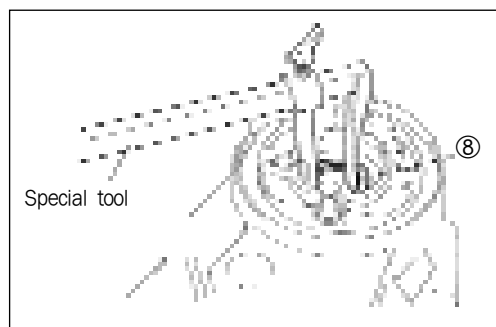
- Remove the bearing ⑦ with the special tool.

09913-75820	Bearing remover (Bearing installer)
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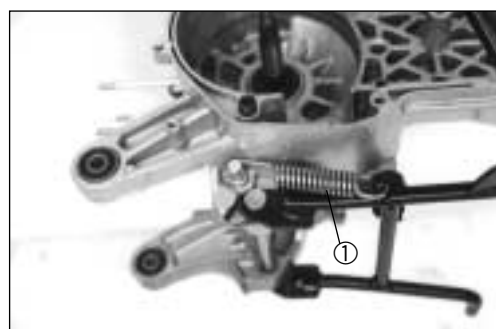
- Remove the oil seal ⑧ with the special tool.

09913-50121	Oil seal remover
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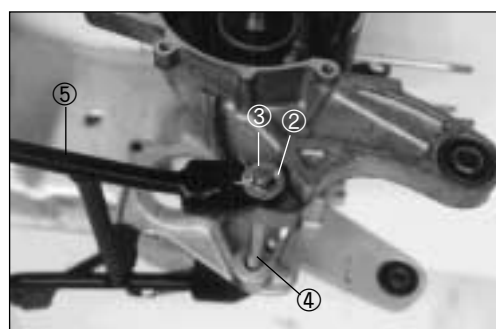


CENTER STAND

- Remove the return spring ①.



- Remove the cotter pin ②, washer ③ and shaft ④.
- Remove the center stand ⑤.



CRANKCASE

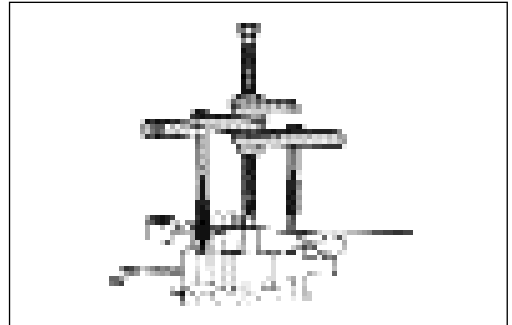
- Remove the crankcase securing screws.

NOTE: Loosen the crankcase nuts diagonally.	
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09920-13120	Crankcase separation tool
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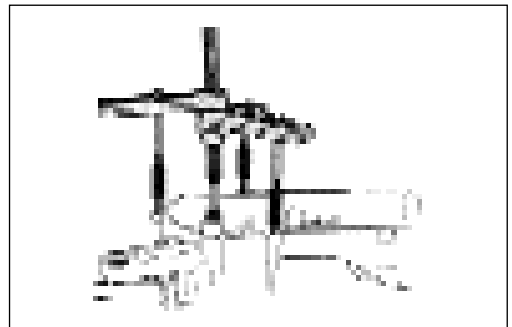


3-11 ENGINE

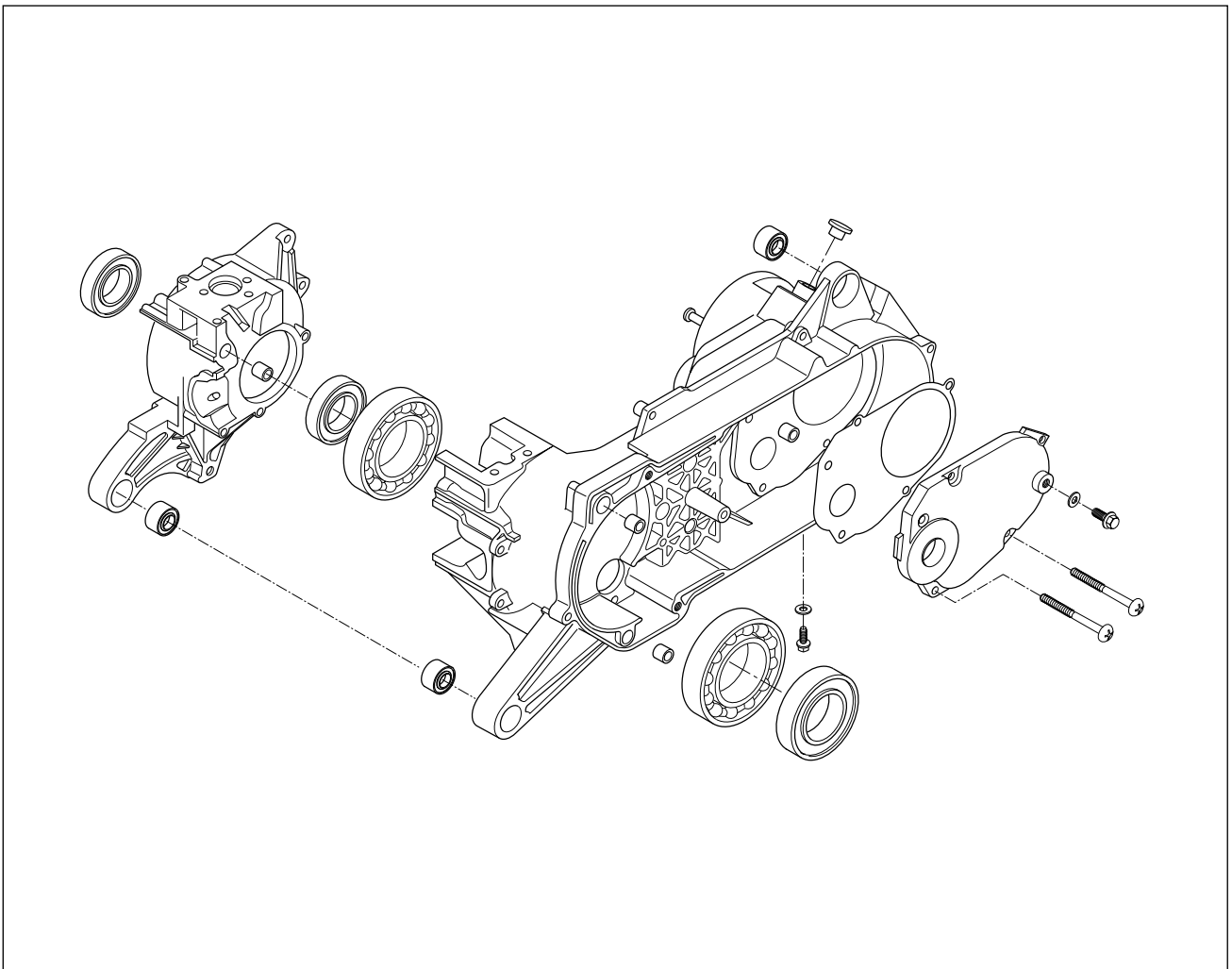


- Remove the crankshaft with the special tool.

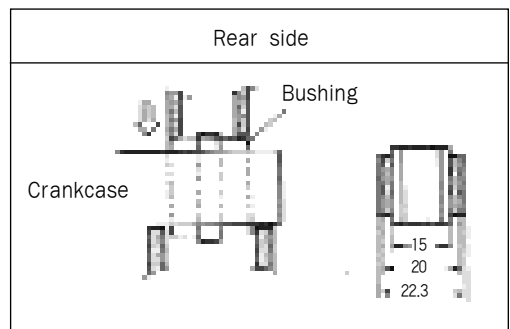
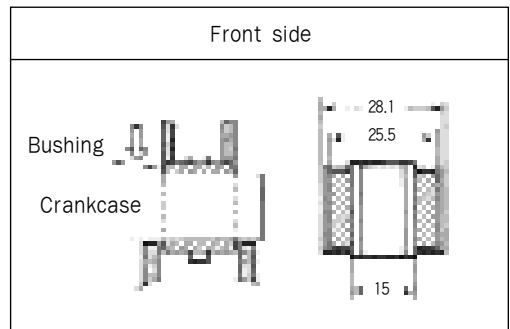
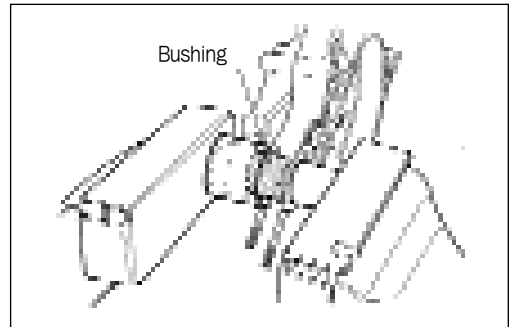
09920-13120	Crankshaft remover (Crankcase separating tool)
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- Remove the bearings, oil seals and bushing.



- Using two steel tubes of appropriate size, press out the engine mounting bushings on a vise as shown in the illustration.

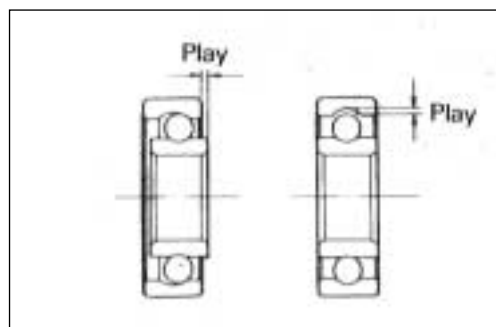


ENGINE COMPONENTS INSPECTION AND SERVICING

BEARINGS

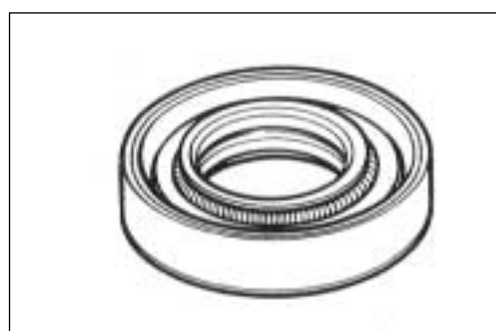
Wash the bearing with cleaning solvent and lubricate with motor oil before inspecting.

Turn the inner ring and check to see that the inner ring turns smoothly. If it does not turn lightly, quietly and smoothly, or if noise is heard, the bearing is defective and must be replaced with a new one.



OIL SEAL

Damage to the lip of the oil seal may result in leakage of the fuel-air mixture or oil. Inspect for damage and be sure to replace the damaged seal if found.



CRANKSHAFT

CRANKSHAFT RUNOUT

Support crankshaft by "V" blocks, with the dial gauge rigged to read the runout as shown.

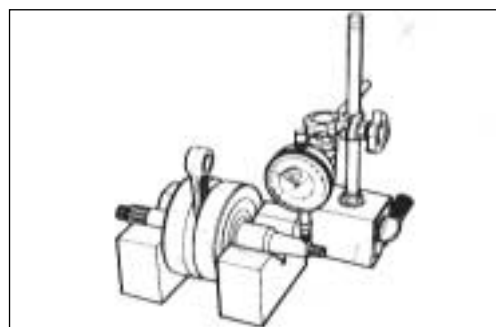
Service limit	0.05 mm(0.002 in)
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Excessive crankshaft runout is often responsible for abnormal engine vibration. Such vibration shortens engine life.

09900-21304	V-block(100 mm)
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09900-20701	Magnetic stand
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09900-20206	Dial gauge(1/100 mm)
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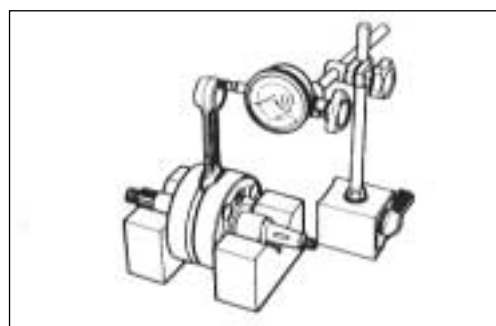
CONDITION OF BIG END BEARING

Turn the crankshaft with the conrod to feel the smoothness of rotary motion in the big end. Move the rod up and down while holding the crankshaft rigidly to be sure that there is no rattle in the big end.

Wear on the big end of the conrod can be estimated by checking the movement of the small end of the rod. This method can also check the extent of wear on the parts of the conrod's big end.

If wear exceeds the limit, conrod, crank pin and crank pin bearing should all be replaced.

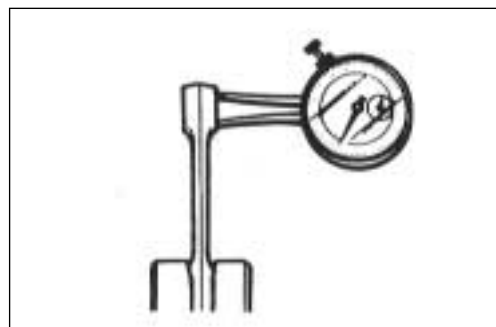
Service limit	3.0 mm(0.12 in)
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CONROD SMALL END BORE I.D.

Measure the conrod small end diameter with a caliper gauge.

Service limit	14.047 mm(0.5530 in)
09900-20605	Dial calipers

**AUTOMATIC CLUTCH INSPECTION**

This motorcycle is equipped with an automatic clutch and variable ratio belt drive transmission. The engagement of the clutch is governed by engine RPMs and centrifugal mechanism located in the clutch.

To insure proper performance and longevity of the clutch assembly it is essential that the clutch engages smoothly and gradually. Two inspection checks must be performed to thoroughly check the operation of the drivetrain. Follow the procedures listed.

1. INITIAL ENGAGEMENT INSPECTION

Warm up the motorcycle to normal operating temperature.

Remove the right frame side cover.

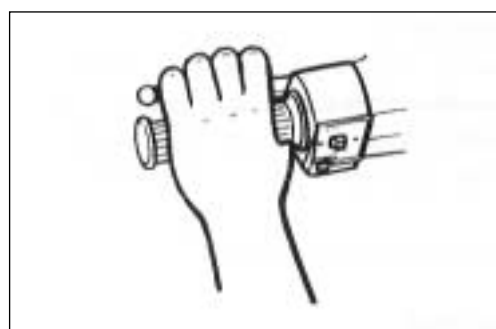
Connect an electric tachometer to the engine.

Seated on the motorcycle with the motorcycle on level ground, increase the engine RPMs slowly and note the RPM at which the motorcycle begins to move forward.

09900-26006	Tachometer
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**ENGAGEMENT R/MIN**

STD	3300 r/min
Tolerance	± 300 r/min

**2. CLUTCH "LOCK-UP" INSPECTION**

Perform this inspection to determine if the clutch is engaging fully and not slipping.

Warm the engine to normal operating temperatures.

Connect an electric tachometer to the engine.

Apply the rear brake as firm as possible.

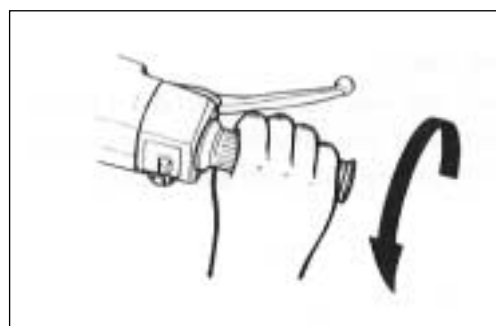
Briefly open the throttle fully and note the maximum engine RPMs sustained during the test cycle.

CAUTION:

Do not apply full power for more than 10 seconds or damage to the clutch or engine may occur.

LOCK-UP R/MIN

STD	5800 r/min
Tolerance	± 500 r/min



3-15 ENGINE

If the engine r/min does not coincide with the specified r/min range, then disassemble the clutch.

Clutch shoe - inspect the shoes visually for chips, cracking, uneven wear and burning, and check the thickness of the shoes with vernier calipers. If the thickness is less than the following service limit, replace them as a set.

Clutch springs - visually inspect the clutch springs for stretched coils or broken coils.

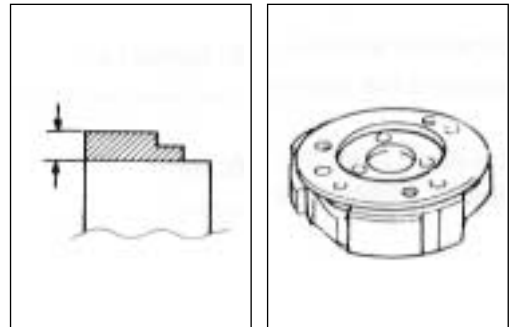
Service limit	2.0 mm(0.08 in)
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CAUTION:

Clutch shoes or springs must be changed as a set and never individually.

Clutch wheel - inspect visually the condition of the inner clutch wheel surface for scrolling, cracks, or uneven wear. Measure inside diameter of the clutch wheel with inside calipers. Measure the diameter at several points to check for an out-of-round condition as well as wear.

Service limit	110.35 mm(4.344 in)
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Measuring clutch wheel I.D.

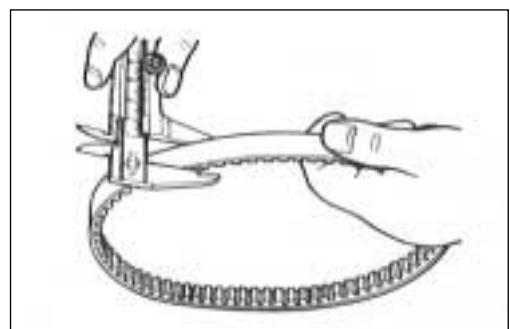
DRIVE BELT

Remove the drive belt and check for cracks, wear and separation. Measure the drive belt width with a vernier calipers. Replace it if the belt width is less than the service limit or any defect has been found.

Service limit	15.3 mm(0.602 in)
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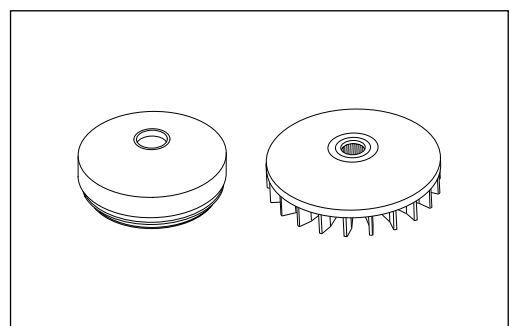
CAUTION:

Always keep the drive belt away from any greasy mater.



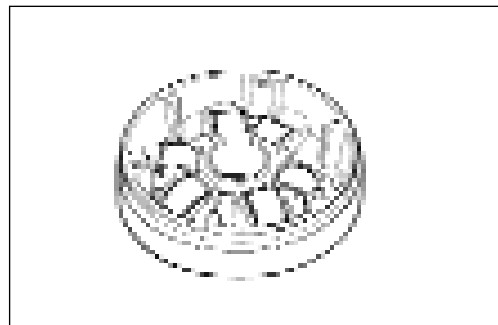
DRIVE FACE

Inspect the belt contact surface of the drive faces for wear, scratches or any abnormality. If there is something unusual, replace the drive face with a new one.



ROLLER AND SLIDING SURFACE

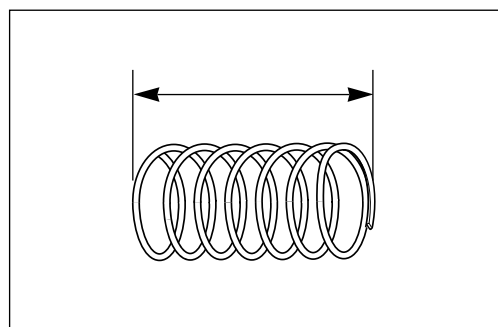
Inspect each roller and sliding surface for wear or damage.



DRIVEN FACE SPRING

Measure the free length of the driven face spring. If the length is shorter than the service limit, replace the spring with a new one.

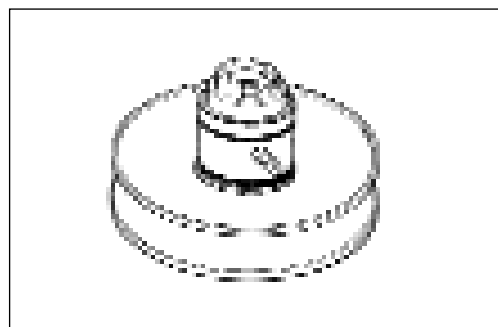
Service limit	104.5 mm(4.11 in)
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DRIVEN FACE PIN AND OIL SEAL

Turn the driven faces and check to see that the driven faces turn smoothly.

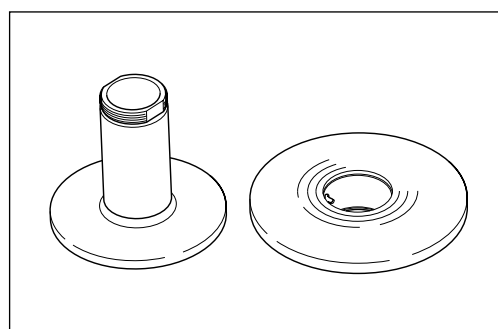
If any stickiness or hitches are found, visually inspect the lip of oil seal, driven face sliding surface and sliding pins for wear or damage.



DRIVEN FACE

Inspect the belt contacting surface of both driven faces for any scratches, wear and damage.

Replace driven face with new one if there are any abnormality.



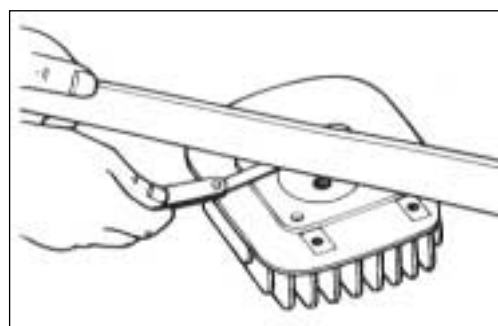
CYLINDER HEAD

Decarbon the combustion chamber.

Check the gasketed surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places.

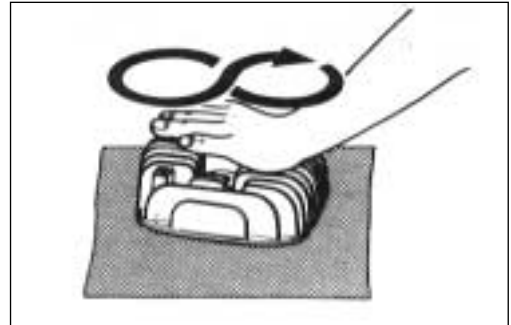
09900-20803	Thickness gauge
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Service limit	0.1 mm(0.004 in)
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3-17 ENGINE

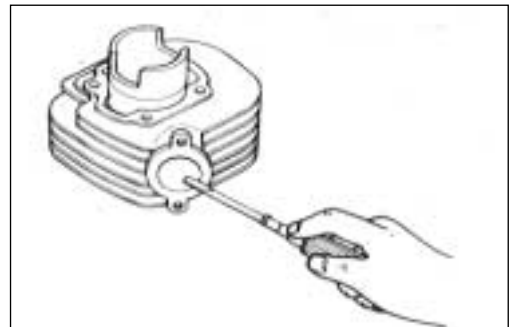
If the largest reading at any portion of the straightedge exceeds the limit, rework the surface by rubbing it against emery paper (of about # 400) laid flat on the surface plate in a lapping manner. The gasketed surface must be smooth and perfectly flat in order to secure a tight joint: a leaky joint can be the cause of reduced power output and increased fuel consumption.



CYLINDER

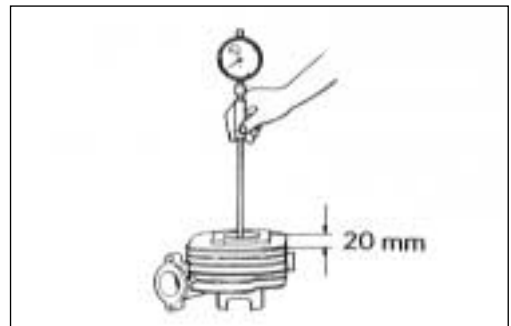
Decarbon exhaust port and upper part of the cylinder, taking care not to damage the cylinder wall surface.

The wear of the cylinder wall is determined from diameter reading taken at 20 mm from the top of the cylinder with a cylinder gauge. If the wear thus determined exceeds the limit indicated below, rework the bore to the next oversize by using a boring machine or replace the cylinder with a new one. Oversize piston is available in one size: 0.5 mm oversize.



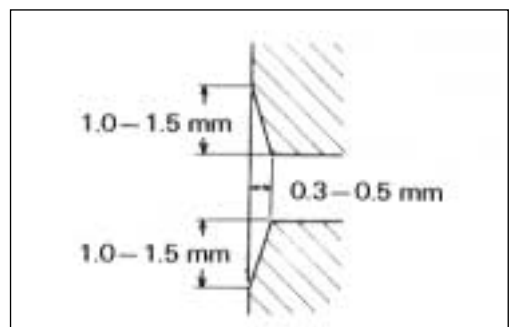
09900-20508	Cylinder gauge set
Service limit	41.070 mm(1.6169 in)

After reworking the bore to an oversize, be sure to chamfer the edges of ports and smooth the chamfered edges with emery paper. To chamfer, use a scraper, taking care not to nick the wall surface.



NOTE:

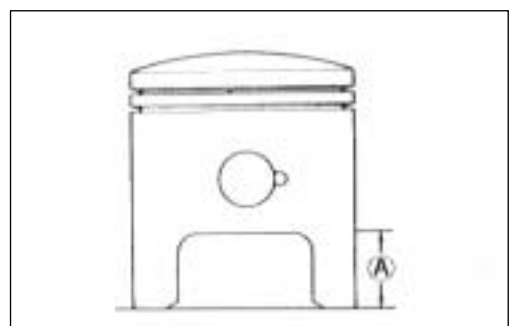
Minor surface flaws on the cylinder wall due to seizure or similar abnormalities can be corrected by grinding the flaws off with fine-grain emery paper. If the flaws are deep grooves or otherwise persist, the cylinder must be reworked with a boring machine to the next oversize.



PISTON

CYLINDER TO PISTON CLEARANCE

Cylinder-to-piston clearance is the difference between piston diameter and cylinder bore diameter. Be sure to take the measured diameter at right angles to the piston pin. The value of elevation (A) is prescribed to be 15 mm from the skirt end.



09900-20202	Micrometer(25-50 mm)
Service limit	40.885 mm(1.6096 in)

As a result of the above measurement, if the piston-to-cylinder clearance exceeds the following limit, overhaul the cylinder and use an oversize piston, or replace both cylinder and piston. The measurement for the bore diameter should be taken in the intake-to-exhaust port direction and at 20mm from the cylinder top surface.

Unit: mm

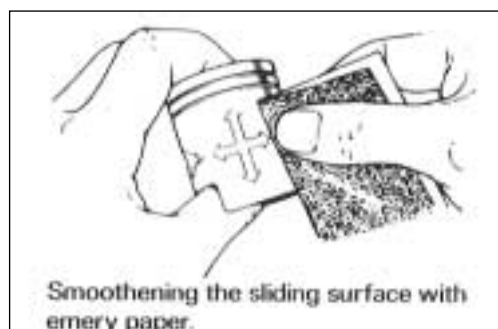
	STD	Service Limit
Cylinder	41.005-41.020	41.070
Piston	40.935-40.950	40.885
Cylinder to piston	0.065-0.075	0.120

DE-CARBONING

De-carbon the piston and piston ring grooves, as illustrated. After cleaning the grooves, fit the rings and rotate them in their respective grooves to be sure that they move smoothly.

Carbon in groove is liable to cause the piston ring to get stuck in the groove, and this condition will lead to reduced engine power output.

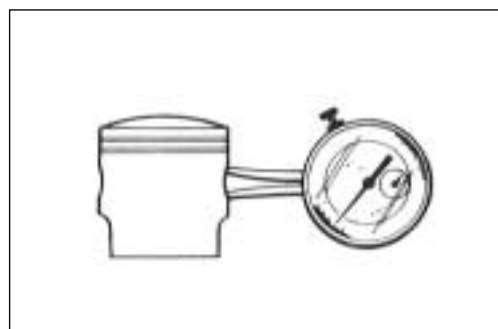
A piston whose sliding surface is badly grooved or scuffed due to overheating must be replaced. Shallow grooves or minor scuff can be removed by grinding with emery paper of about # 400.



PISTON PIN BORE

Using a caliper gauge, measure the piston pin bore inside diameter. If reading exceeds the following service limit, replace it with a new one.

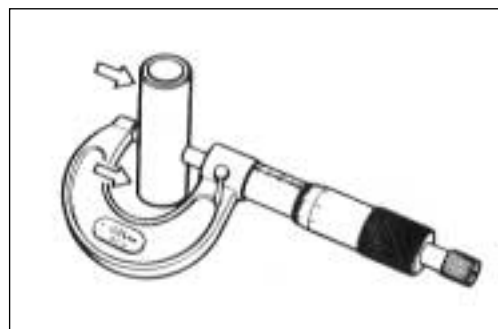
09900-20605	Dial calipers
Service limit	10.036 mm(0.4079 in)



PISTON PIN O.D.

Using a micrometer, measure the piston outside diameter at three positions.

09900-20205	Micrometer(0-25 mm)
Service limit	9.980 mm(0.3929 in)



3-19 ENGINE

PISTON RINGS

Check each ring for end gap, reading the gap with a thickness gauge shown in the illustration. If the end gap is found to exceed the limit, indicated below, replace it with a new one.

The end gap of each ring is to be measured with the ring fitted squarely into the cylinder bore and held at the least worn part near the cylinder bottom, as shown in the illustration.

09900-20803	Thickness gauge
Service limit	0.75 mm(0.030 in)

As the piston ring wears, its end gap increases reducing engine power output because of the resultant blow by through the enlarged gap. Here lies the importance of using piston rings with end gaps within the limit.

Measure the piston ring free end gap to check the spring tension.

Service Limit	1st	3.7 mm(0.15 in)
	2nd	3.5 mm(0.14 in)

Fix the piston ring in the piston ring groove, measure the ring side clearance with the thickness gauge while matching the sliding surfaces of piston and ring.

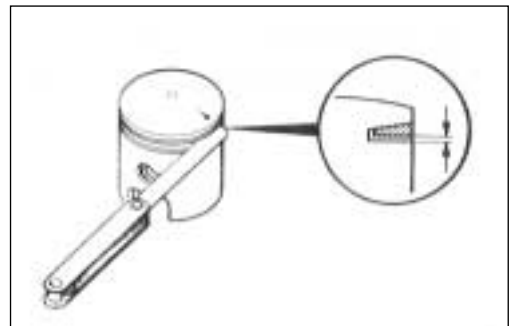
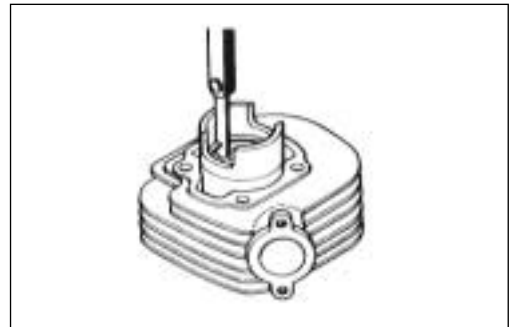
STD clearance	0.020-0.060 mm (0.0008-0.0024 in)
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REED VALVE

When reinstalling the reed valve and stopper plate to the body, align the both cut on the reed valve and stopper plate.

Apply Thread Lock "1324" to the stopper plate securing screws.

99000-32030	Thread Lock "1324"
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ENGINE REASSEMBLY

Reassembly is generally performed in the reverse order of disassembly, but there are a number of reassembling steps that demand or deserve detailed explanation or emphasis. These steps will be taken up for respective parts and components.

OIL SEALS

Fit the oil seals to the crankcase following the procedure below. Replace removed oil seals with new ones.

- Apply grease to the lip of the oil seals.

99000-07000	Grease "G ₂ "
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- Be sure to apply Thread Lock "1324" to outer surfaces of right and left crankshaft oil seals to prevent them from moving.

99000-32030	Thread Lock "1324"
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- When fitting the oil seal in the crankcase, insert it slowly with the special tools.

09913-75830	Oil seal installer
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09924-74510	Oil seal installer handle
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09924-74540	Oil seal installer attachment
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NOTE:

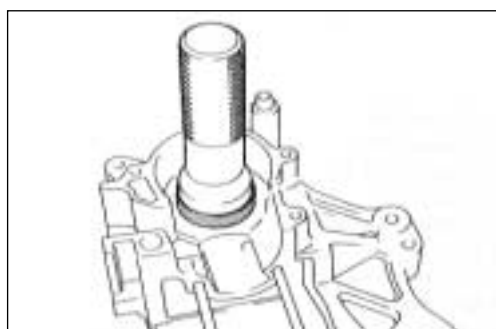
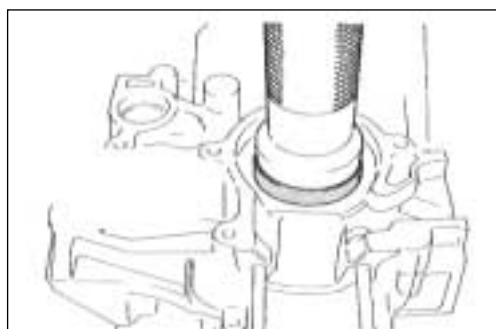
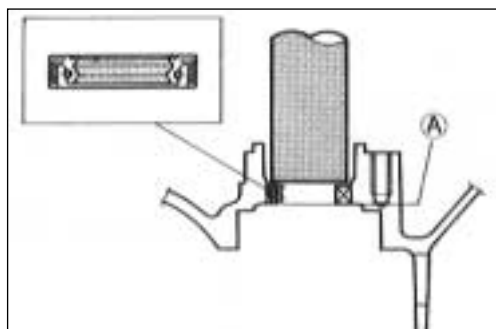
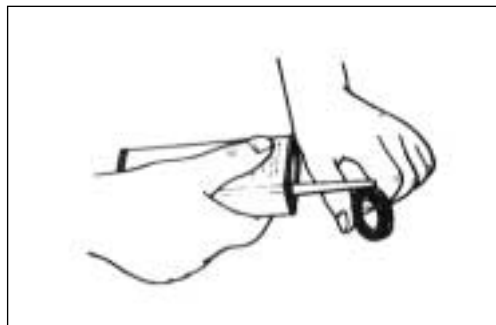
Align the oil seal with edge **Ⓐ** of the crankcase as shown in the illustration.

BEARINGS

Install new bearings with the special tool.

09913-75810	Bearing installer
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09913-76010	Bearing installer
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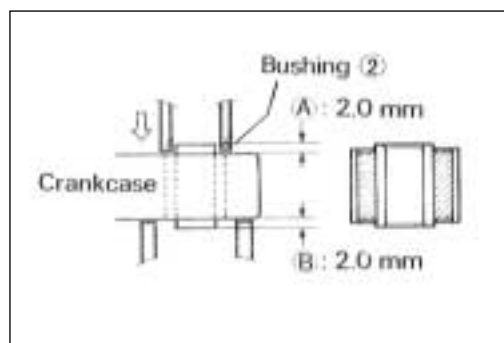
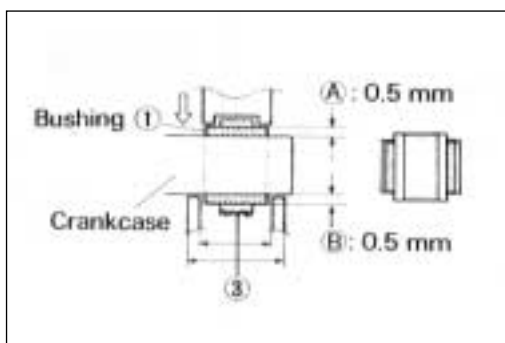
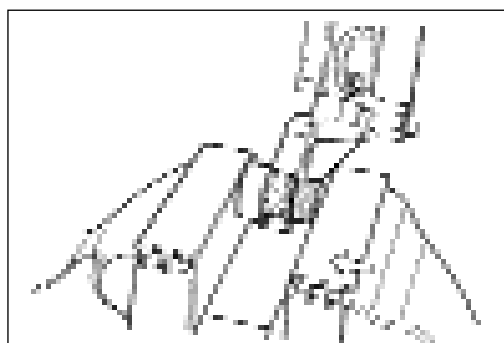
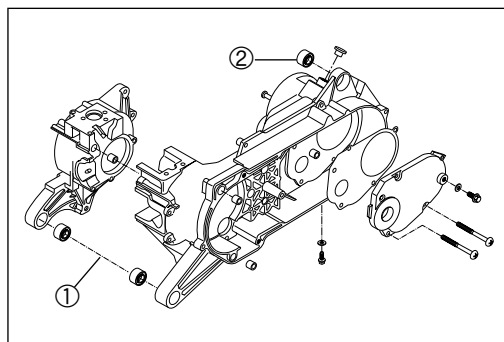
3-21 ENGINE

BUSHINGS

Using two steel tubes of appropriate size and a vise, press the mounting bushings ① and ② into the crankcase holes as shown in the illustration.

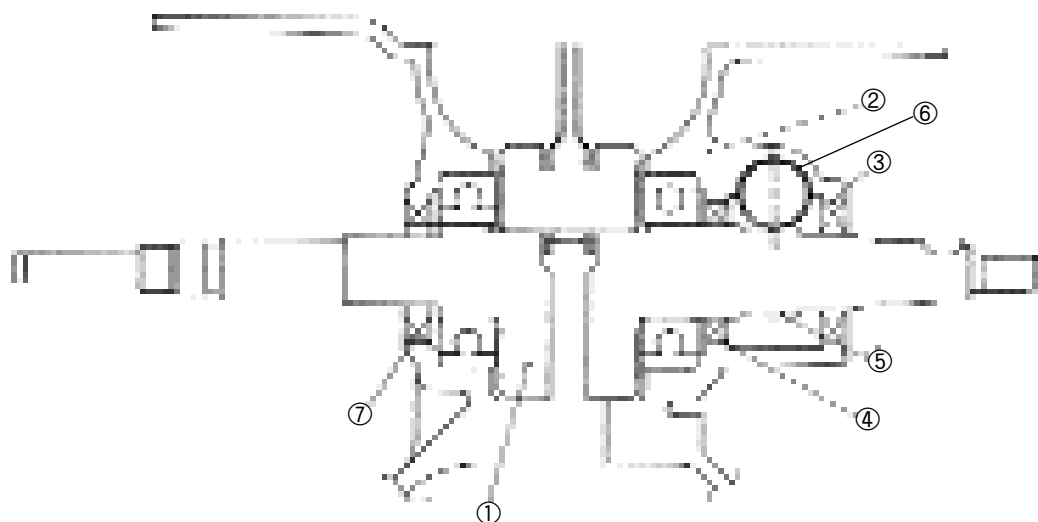
NOTE:

Knurled end ③ should face inside. Protrusion A and B should be in the same dimension.



CRANKSHAFT

- ①Crankshaft
- ②Crankcase(R)
- ③Oil seal
- ④Oil seal
- ⑤Oil pump drive gear
- ⑥Oil pump drive gear
- ⑦Oil



- Decide the length between the webs referring to the figure at right when rebuilding the crankshaft.

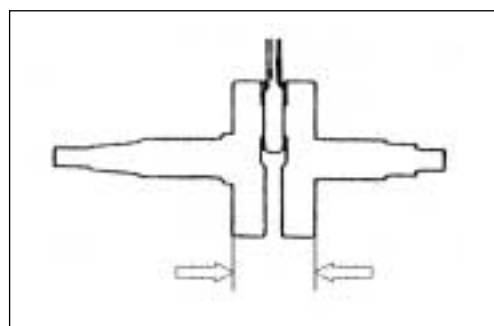
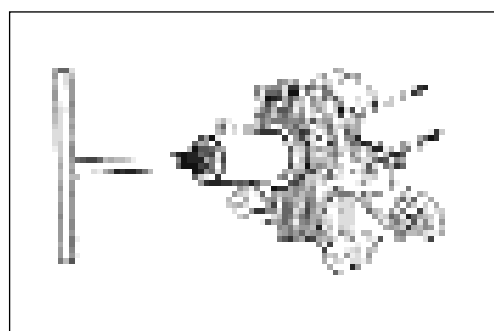
Standard width between webs	$35.0 \pm 1.0 \text{ mm}$ $(1.378 \pm 0.004 \text{ in})$
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- When mounting the crankshaft into the crankcase, it is necessary to pull its left end into the crankcase with the special tool.

09910-32812	Crankshaft installer
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CAUTION:

Never fit the crankshaft into the crankcase by driving it with a plastic hammer. Always use the special tool, otherwise crankshaft alignment accuracy will be affected.



3-23 ENGINE

CRANKCASE

- Wipe the crankcase mating surfaces(both surfaces)with cleaning solvent.
- Apply THREE BOND NO.1215 uniformly to the mating surface of the left half of the crankcase, and install the dowel pins.

99000-31110

THREAD BOND NO.1215

- Install the two dowel pins.
- Tighten the crankcase screws securely.
- Check if crankshaft rotates smoothly.

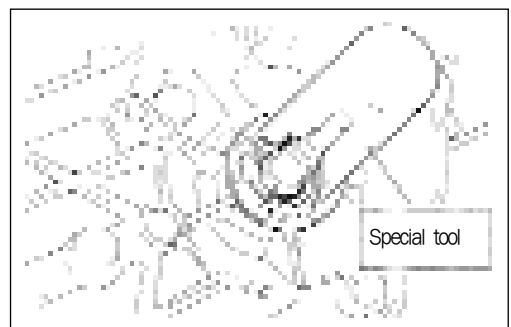
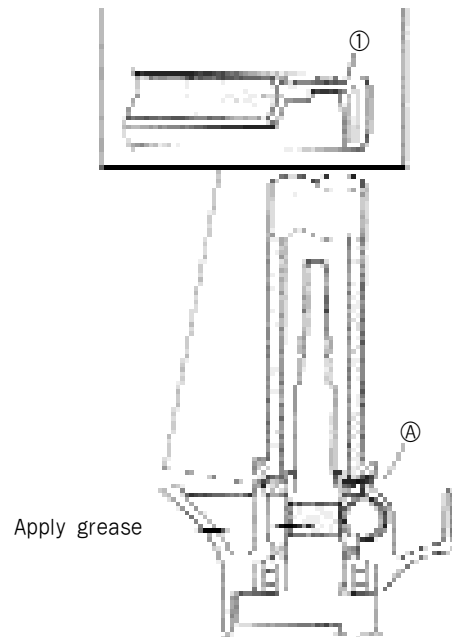
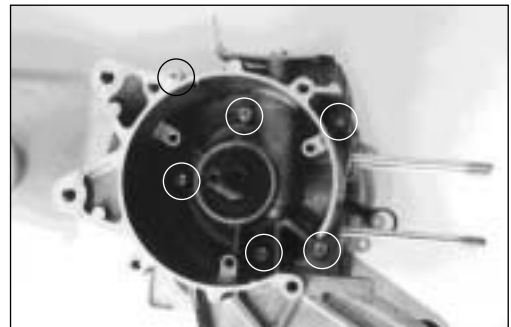
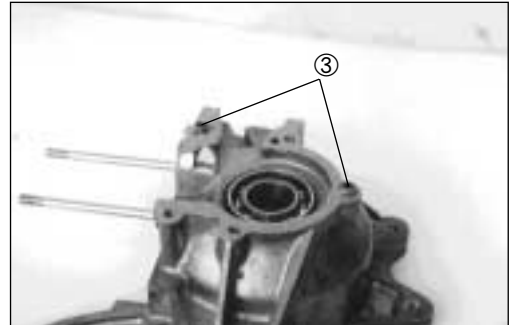
- Install the new oil seal ① to the crankcase with the special tool.

NOTE:

Align the oil seal with edge ④ of the crankcase as shown in the illustration.

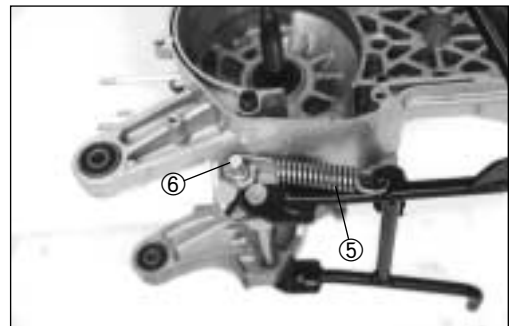
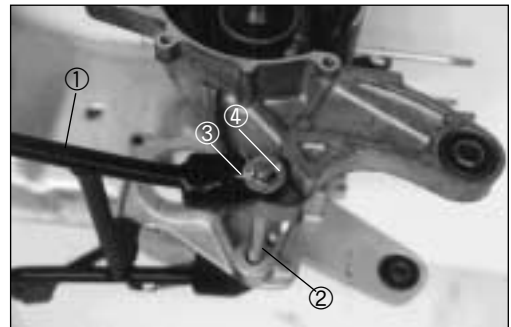
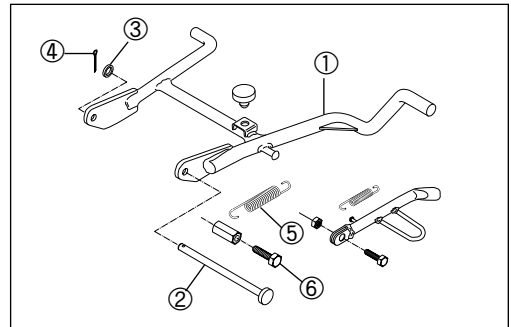
09913-85210

Bearing installer

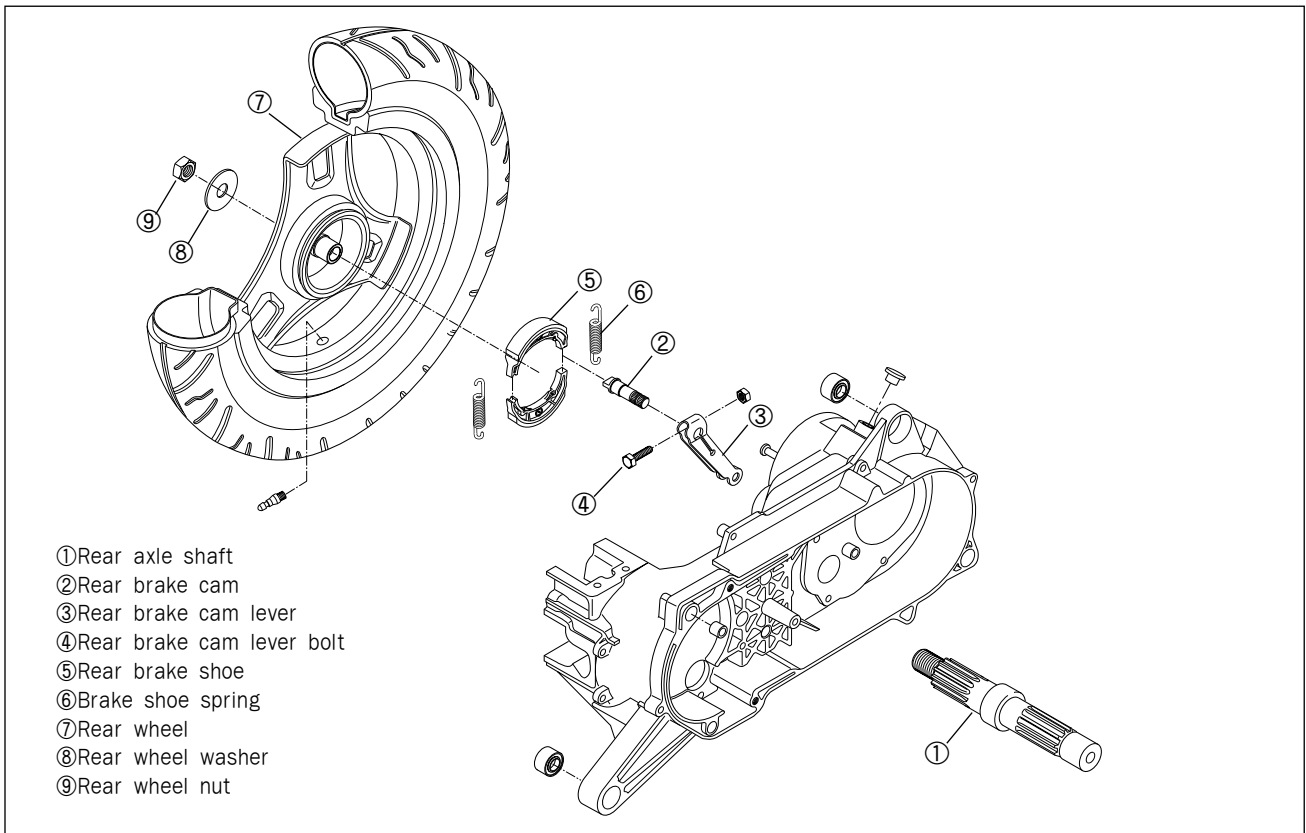


CENTER STAND

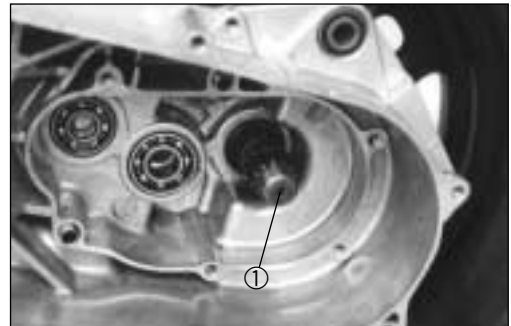
- Install the center stand ①.
- Install the shaft ②, washer ③ and cotter pin ④.
- Hook center stand spring ⑤ into the crankcase.



REAR AXLE SHAFT, BRAKE AND WHEEL



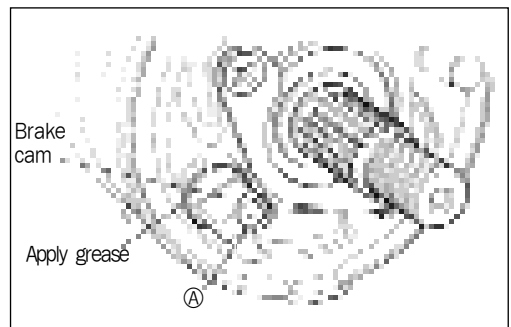
- Install the rear axle shaft ① into the crankcase by tapping its end lightly.
- Apply engine oil on the left end of the rear axle shaft being inserted later in the reduction rear box cover.



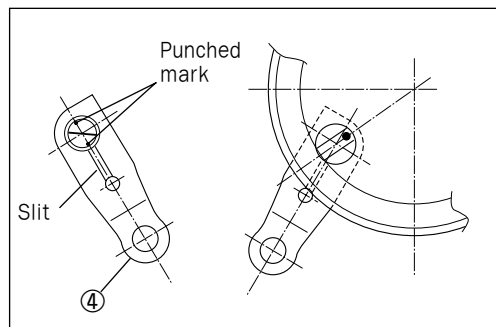
- Apply grease lightly on the rear brake cam pivot part and install it to the crankcase.

99000-07000	Grease "G2"
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- Turn to position the cam where the punched mark (A) on the end face is directed toward the axis of the rear axle shaft.

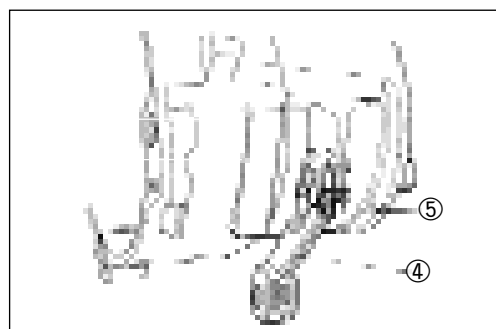


- When installing the cam lever ④ to the cam, align the punched mark with the slit of cam lever.



- Tighten the cam lever nut ⑤ to the specified torque.

Tightening torque	6-9 N · m (0.6-0.9 kg-m, 4.5-6.5 lb-ft)
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- Install the brake shoes.
- Apply grease to the camshaft and pin before installing the brake shoes.

99000-07000	Grease "G2"
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CAUTION:

Be careful not to apply too much grease to the camshaft and pin. If grease gets on the lining, brake effectiveness will be lost.

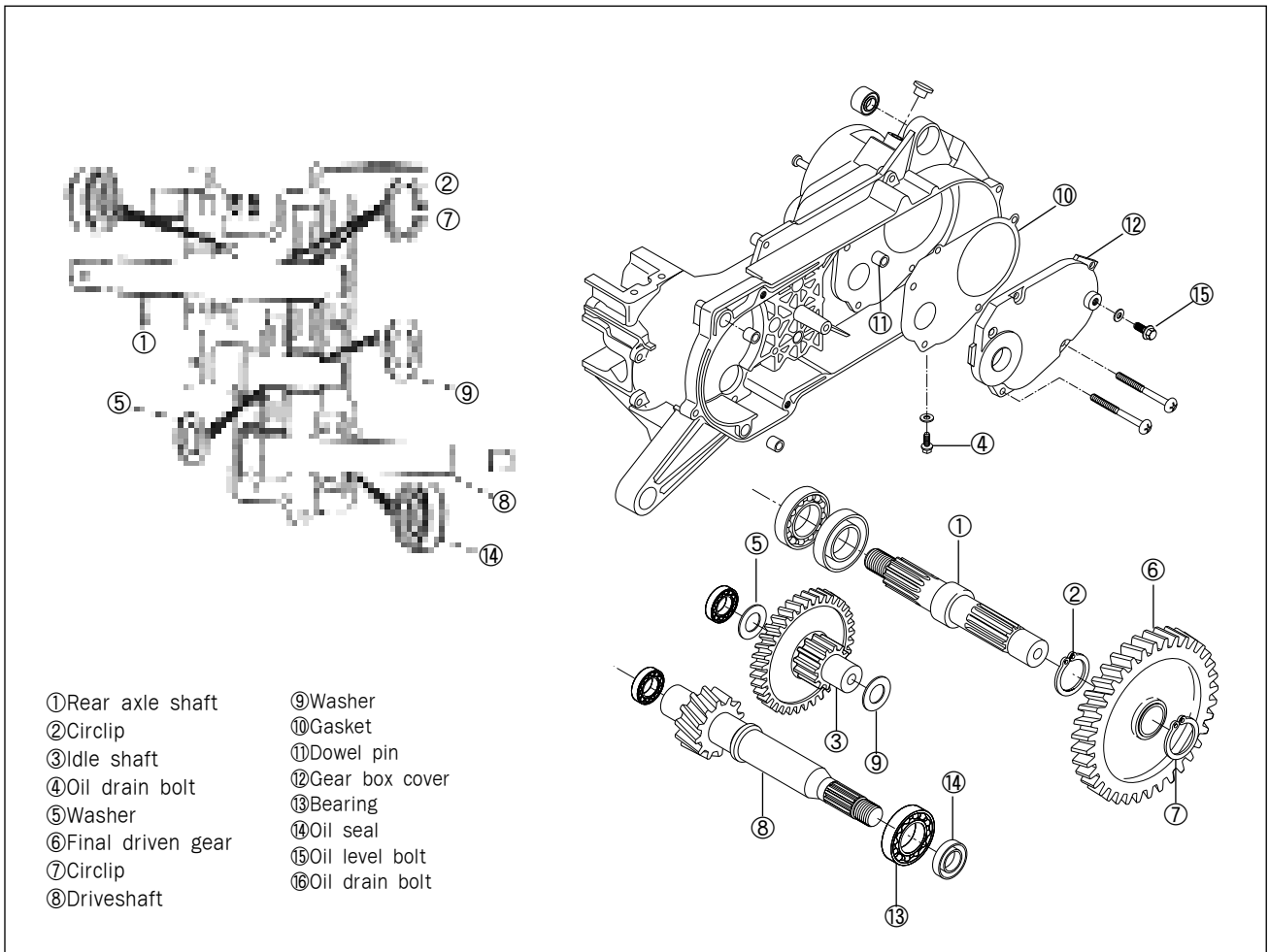


- Install the rear wheel and nut.

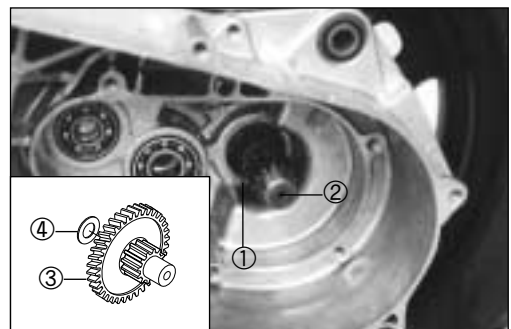
Tightening torque	60-90 N · m (6.0-9.0 kg-m, 43.5-65.0 lb-ft)
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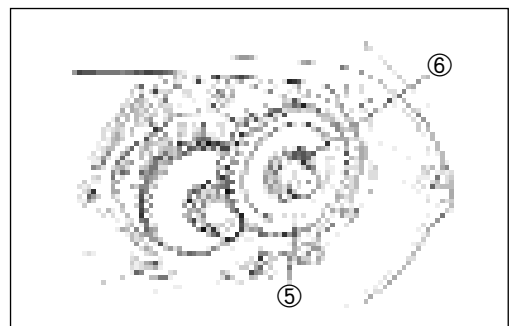
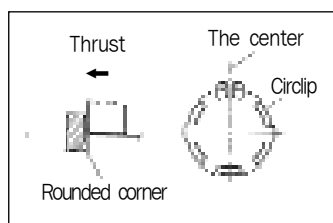
TRANSMISSION



- Install the circlip ① on to the rear axle shaft ②.
- Assemble the idle shaft subassembly using the idle shaft ③ and thrust washer ④, then install the subassembly on the gear box.

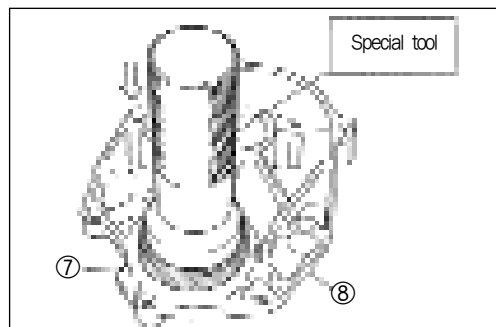


- Install the final driven gear ⑤ on the rear axle shaft using the circlip ⑥.



- Install the new bearing ⑦ to the gear box cover ⑧ with the special tool.

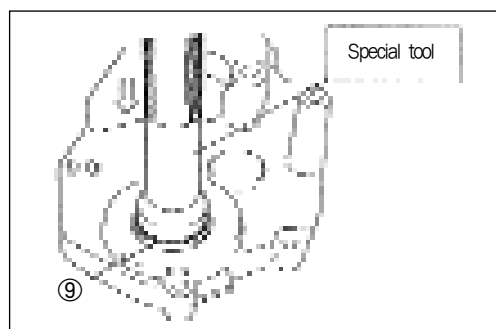
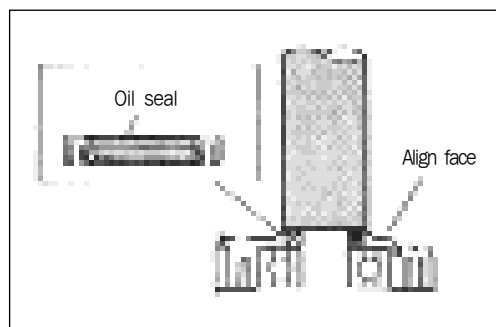
09913-70610	Bearing installer
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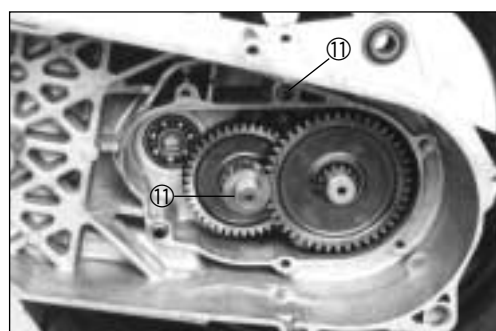
- Apply grease to the lip of the oil seal ⑨ and install it to the gear box cover with the special tool.

99000-07000	Grease "Gz"
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09914-05210-005	Bearing installer
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- Install the washer ⑩, new gasket and dowel pin ⑪.
- Install the driveshaft ⑫ to the gear box cover.



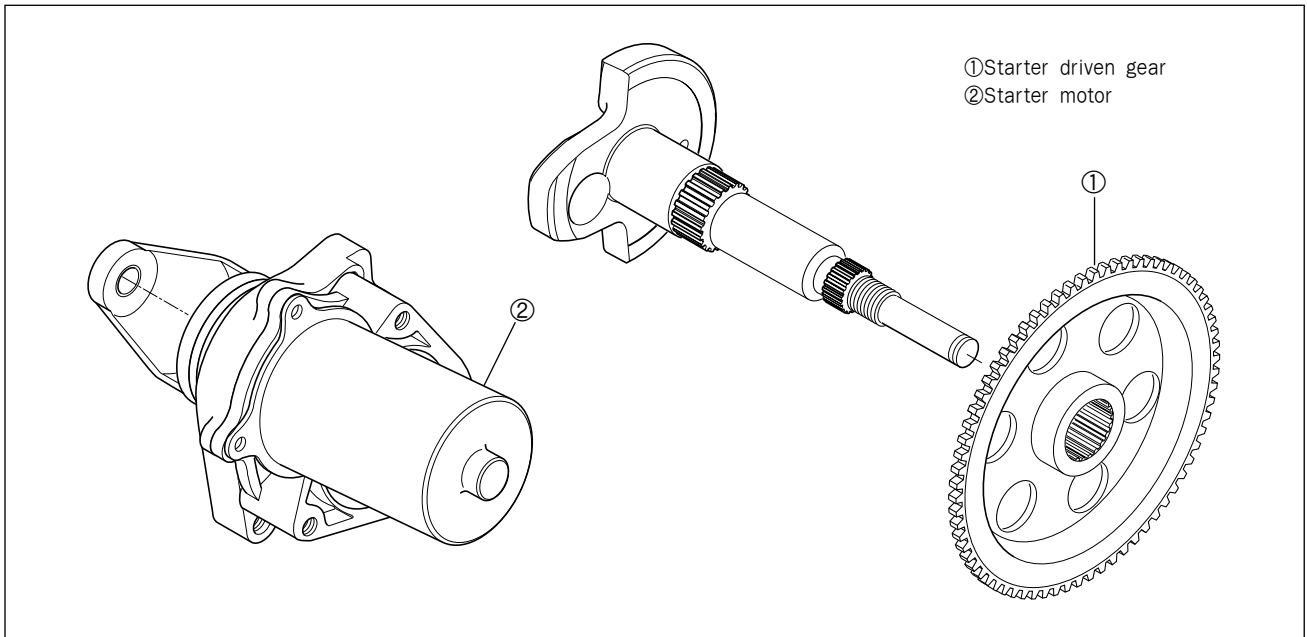
- Apply THREE BOND NO.1215 at the hatched area shown in the illustration and install the gear box cover ⑬ on the crankcase.

99000-31110	Three Bond No. 1215
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- Tighten all the screws evenly one by one in a diagonal fashion.



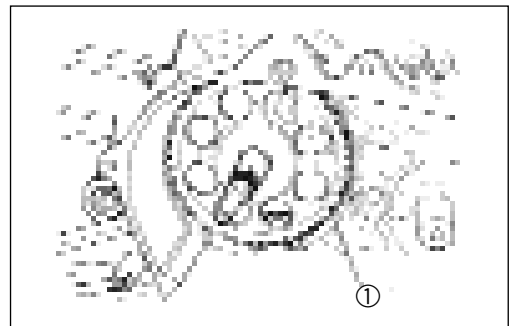
STARTER DRIVEN GEAR AND STARTER MOTOR



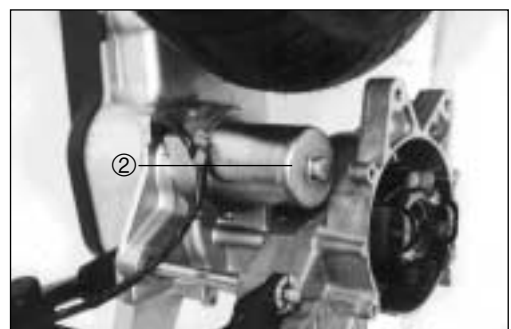
- Install the starter driven gear ① over the left crankshaft end.

NOTE:

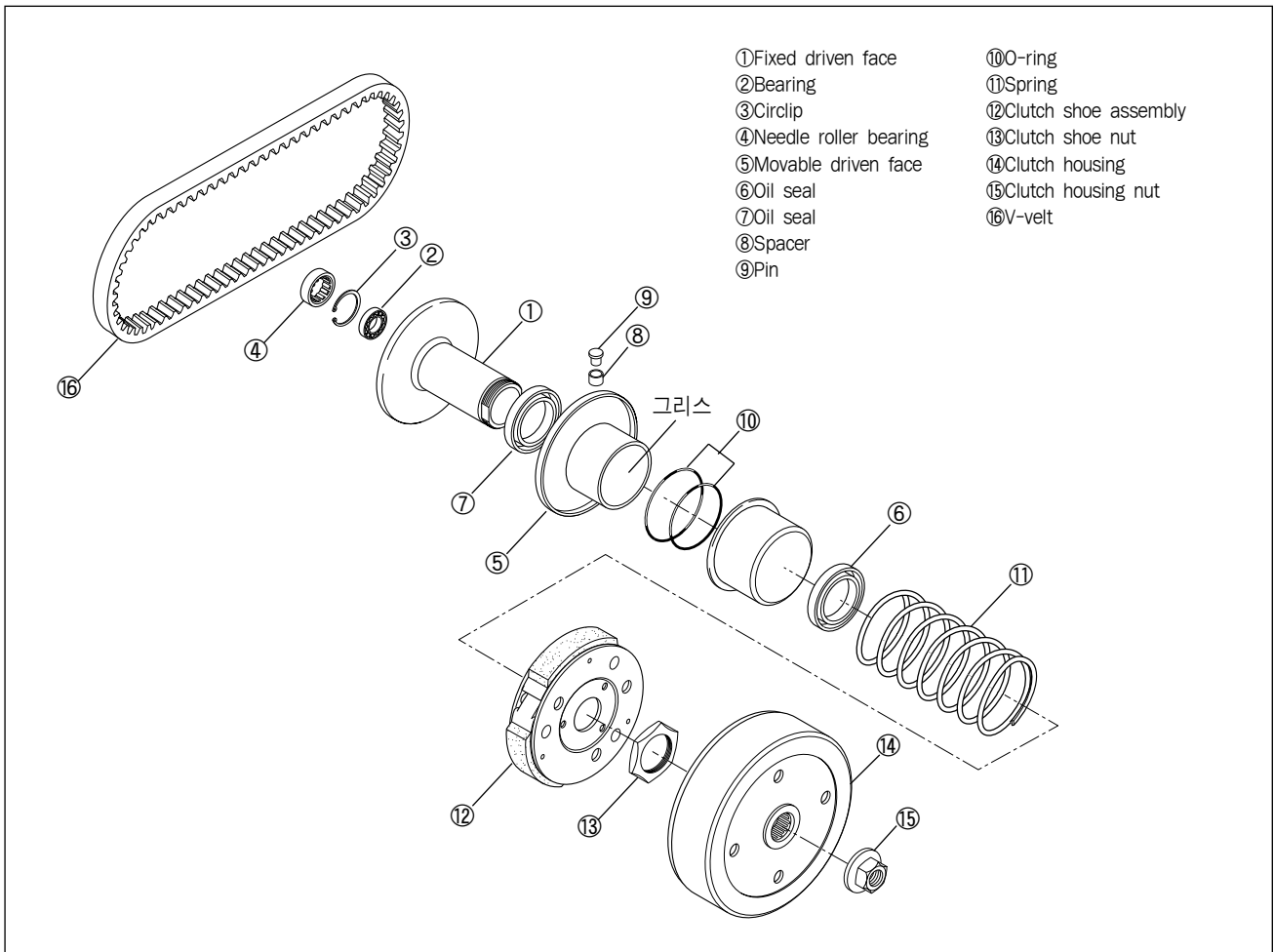
The convex side of hub should face outside when installed in proper position.



- Install the starter motor ②.

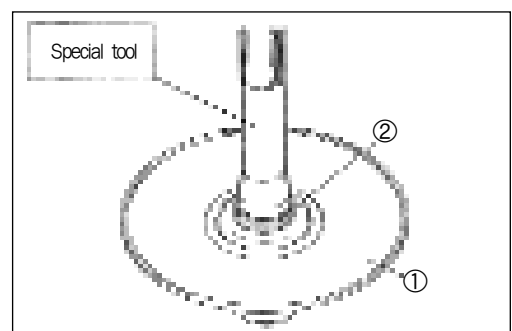


MOVABLE DRIVEN AND CLUTCH

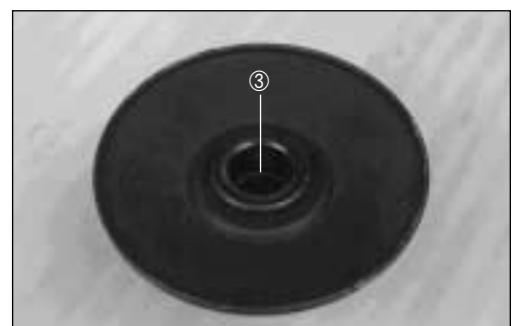
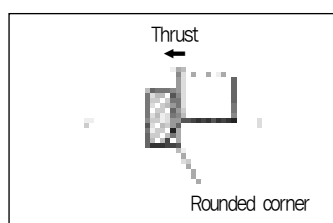


- Install the bearing ② in the fixed driven face ① with the special tool.

09943-88211	Bearing installer
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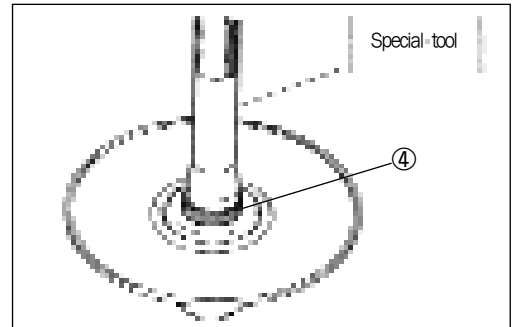
- Install the circlip ③.



3-31 ENGINE

- Install the bearing with the special tool.

09943-88210	Bearing installer
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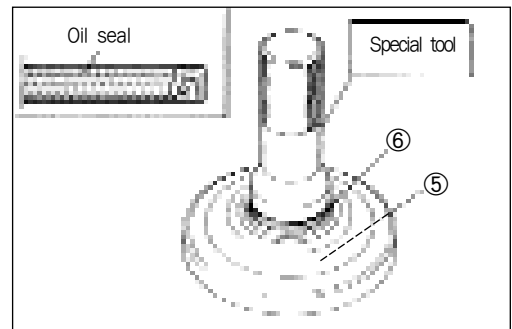


- Install the new oil seals (5, 6) to the movable driven face with the special tool.

09913-76010	Bearing installer
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- Apply grease to the lip of oil seals and groove of inside of movable driven face.

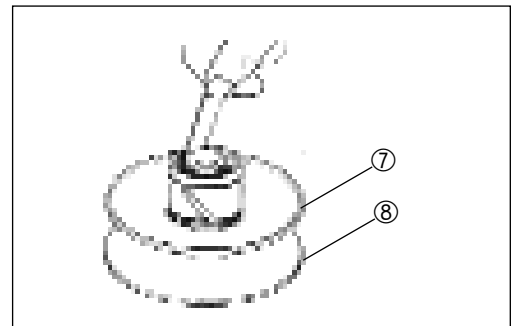
99000-07000	Grease "G2"
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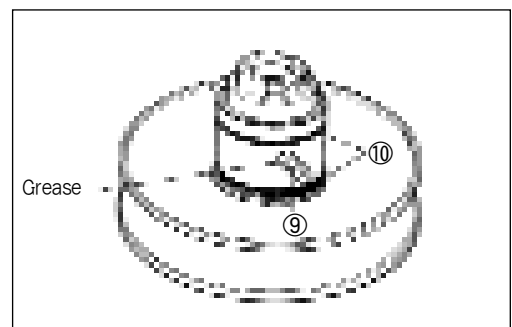
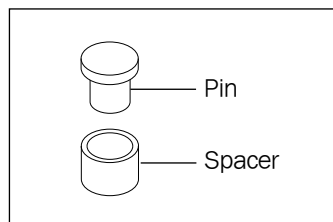
- Install the movable driven (7) to the fixed driven face (8).

NOTE:

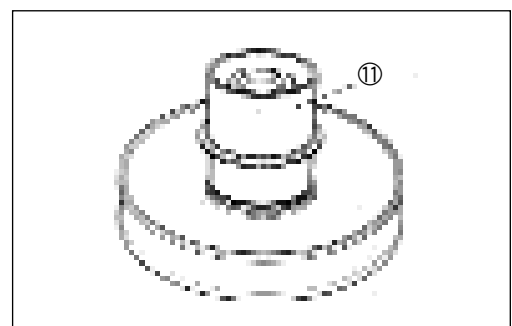
When reinstalling the movable face to the fixed face, make sure that the oil seal is positioned properly.



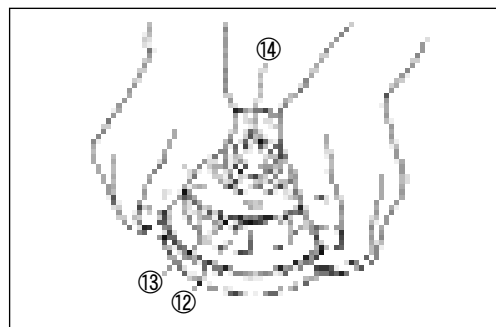
- Install the pin (9) at three places on the driven face hub.
- Apply grease lightly to the cam part where the pins are placed.
- Position two O-ring (10).



- Install the movable driven face seat (11).



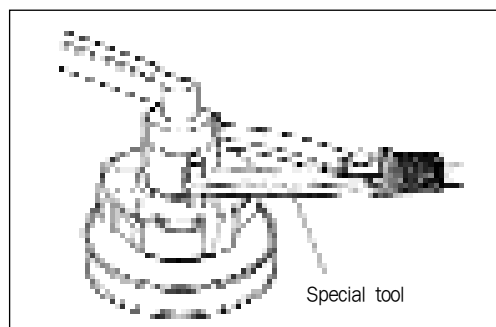
- Install the spring ⑫.
- Install the clutch shoe assembly ⑬ and nut ⑭.



- Tighten the nut to the specified torque with the special tool.

09930-40113	Rotor holder
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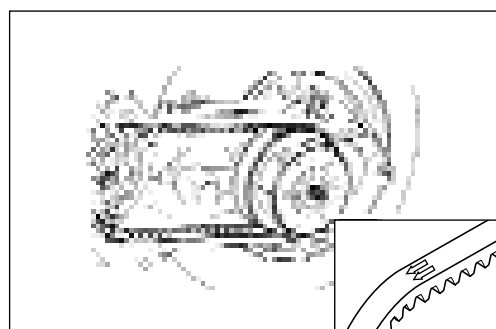
Tightening torque	40-60 N · m (4.0-6.0 kg-m, 29.0-43.5 lb-ft)
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- Insert the V-belt between the driven faces as deep inside as possible while pulling the movable driven face all the way outside to provide the maximum belt clearance.

CAUTION:

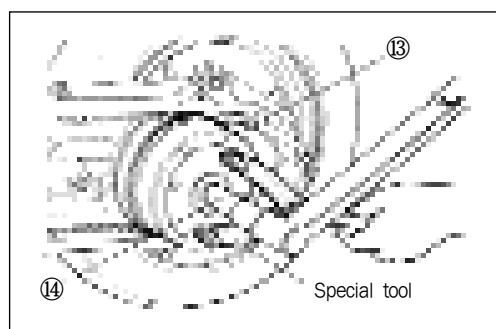
The belt should be positioned so that the arrows on the belt periphery point the normal turning direction. The V-belt contact face on the driven faces should be thoroughly cleaned to be free from oil.



- Thoroughly clean the clutch housing ⑬ to be free from oil and position it over the clutch shoe assembly.
- Tighten the clutch housing nut ⑭ to the specified torque with the special tool.

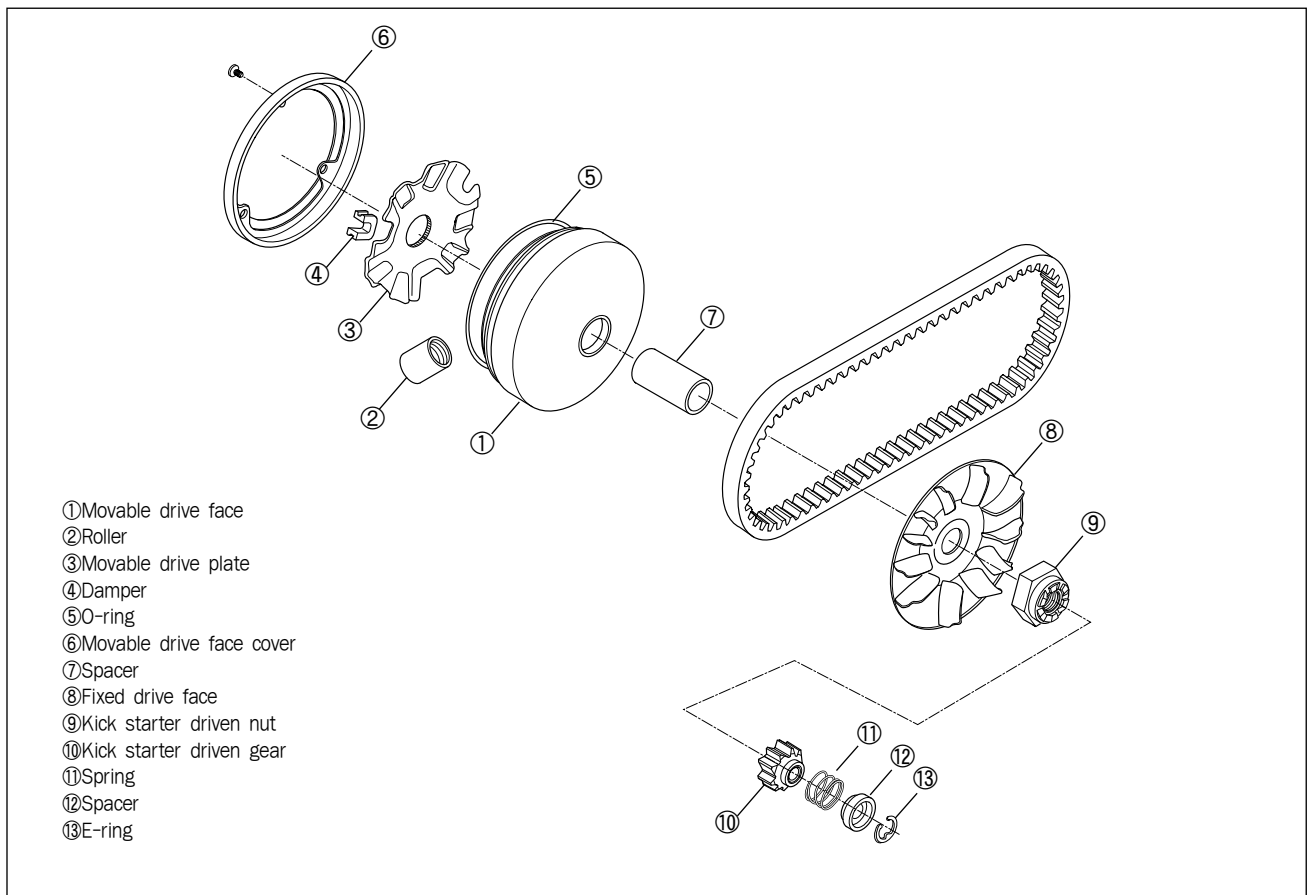
09930-40113	Rotor holder
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Tightening torque	40-60 N · m (4.0-6.0 kg-m, 29.0-43.5 lb-ft)
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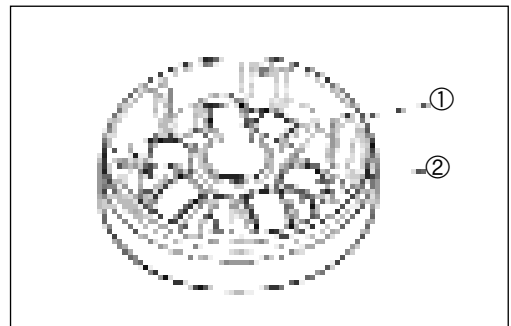


3-33 ENGINE

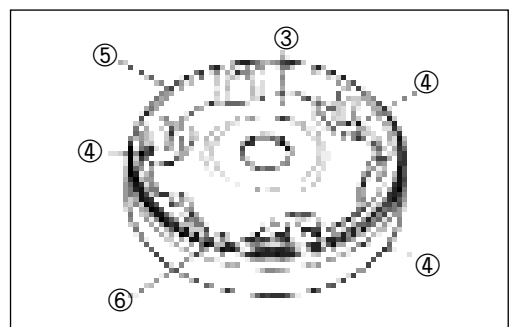
MOVABLE DRIVE



- Install the roller ② to the movable drive face ①.



- Mount the three dampers ④ on the movable drive plate ③ and install it on the movable drive face ⑤.
- Position the O-ring ⑥ on the movable drive face.



- Install the movable drive face cover ⑦.

NOTE:

Make sure that the movable drive plate is fully positioned inside, or the weight roller may come off.

- Insert the spacer.

- Position the movable drive face subassembly on the crankshaft as shown in the photo.

NOTE:

Thoroughly clean the belt contact to be from oil.

- Install the fixed drive face ⑧.
- Tighten the nut ⑨ to the specified torque with the special tool.

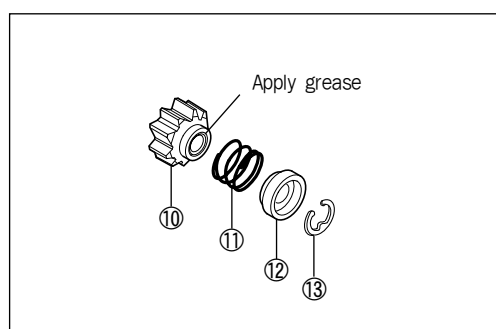
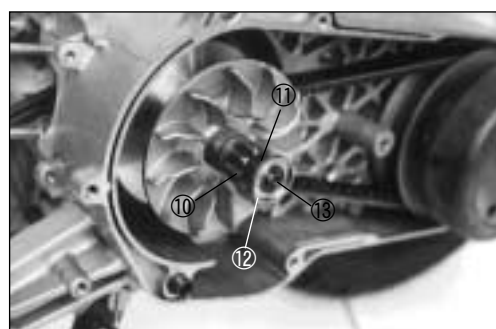
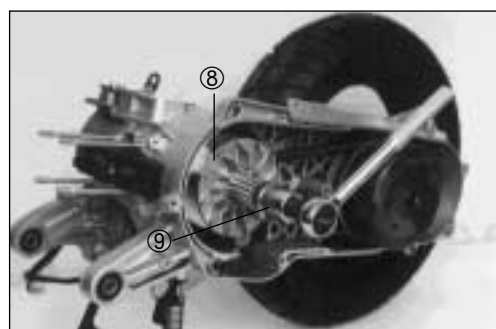
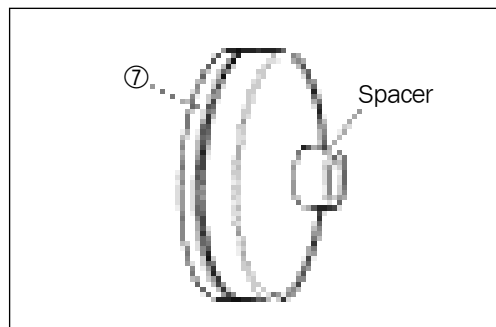
09910-20115	Conrod holder
Tightening torque	40-60 N · m (4.0-6.0 kg-m, 29.0-43.5 lb-ft)

- Fill grease in the groove provided inside sliding surface of the kick driven gear and install it ⑩ on the end of the crankshaft. Wipe off excess grease.

99000-07000	Grease "G2"
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- Install the spring ⑪ and spacer ⑫.

- Install the E-ring ⑬.



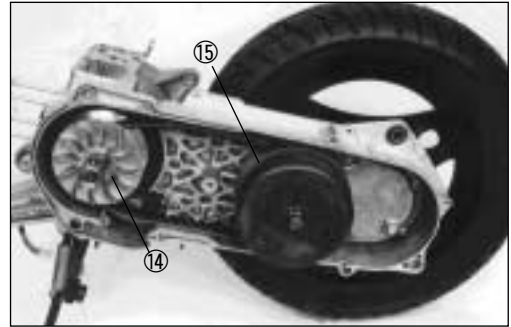
3-35 ENGINE

- Continue turning the fixed drive face ⑭ by hand until the belt is seated in and both the drive and driven faces ⑮ will move together smoothly without slip.
- Fill the final gear box with engine oil up to the level hole.

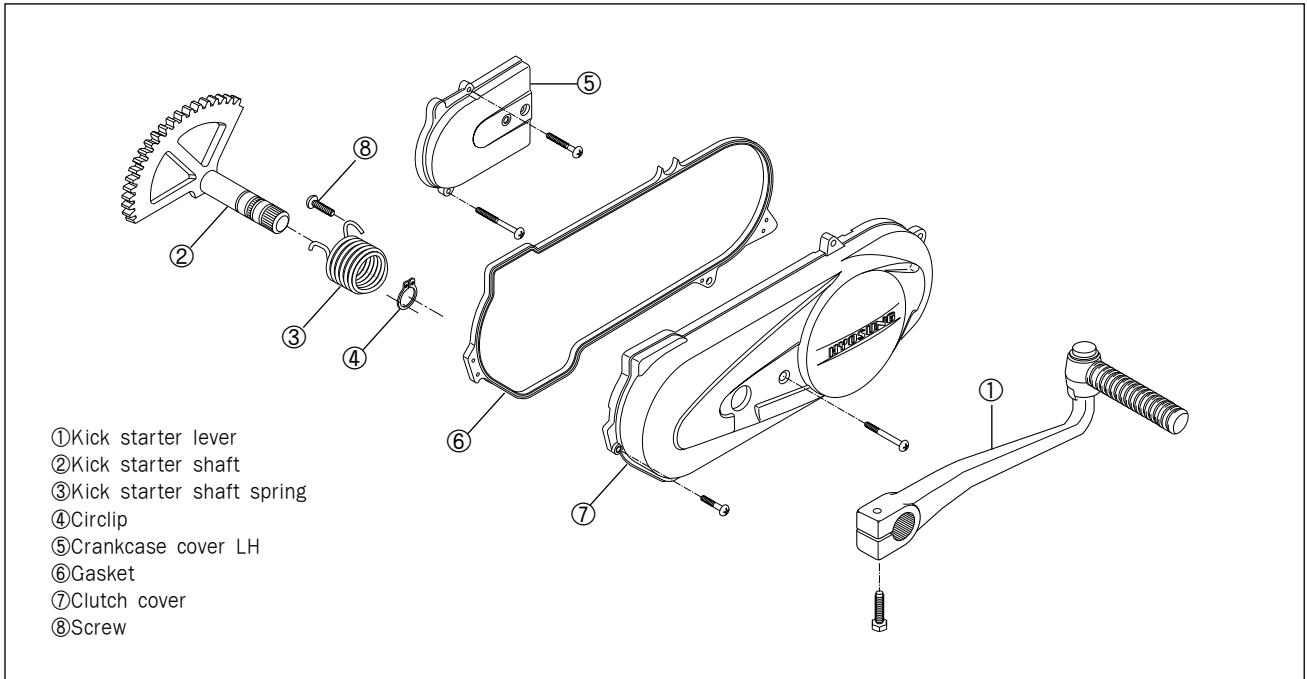
Oil Capacity	90 ml
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- Tighten the oil level bolt to the specified torque.

Tightening torque	9-15 N · m (0.9-1.5 kg-m, 4.5-11.0 lb-ft)
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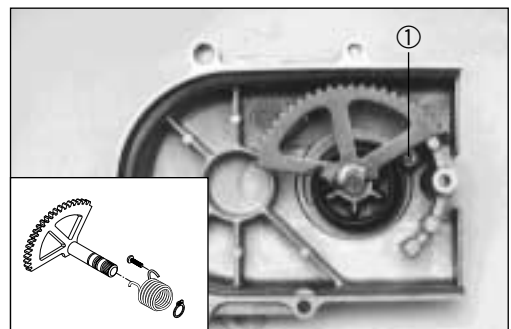
KICK STARTER



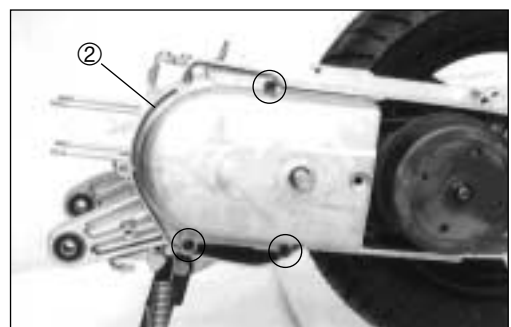
- Apply grease lightly on the rolling surface and install it on the crankcase cover.

99000-07000	Grease "G2"
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- Position the kick starter shaft return spring and hook the spring end on the crankcase cover boss ①.



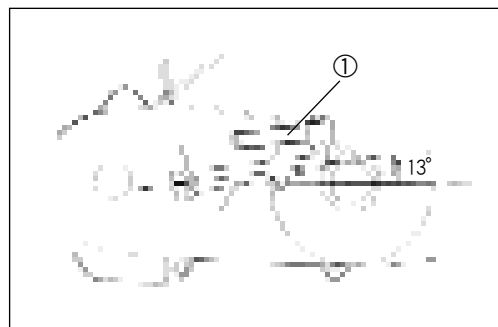
- Install the dowel pin and crankcase cover ②.



- Install the clutch cover and kick starter lever ①.

NOTE:

Install the kick starter lever as shown in the illustration.

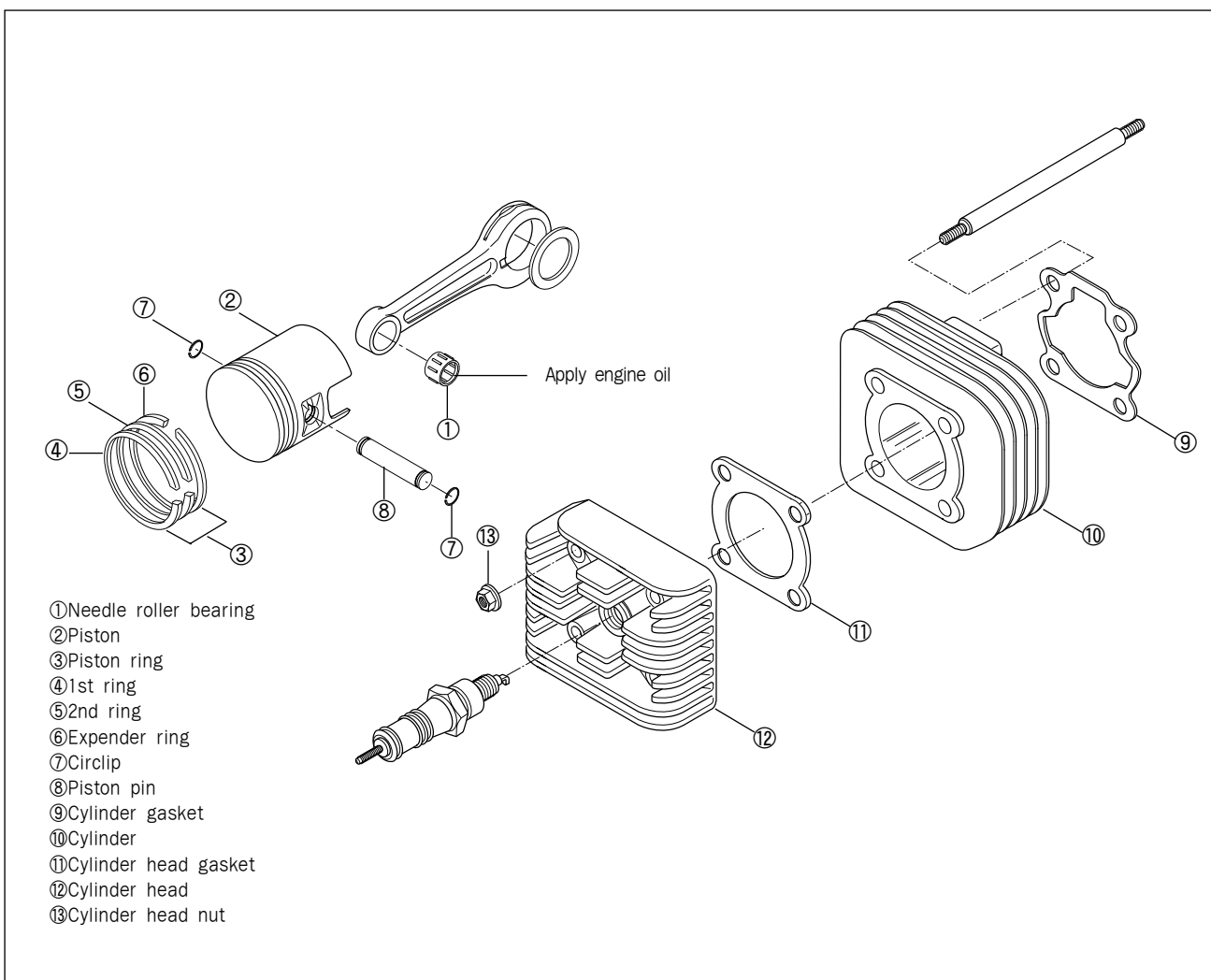


- Tighten the kick starter lever bolt to the specified torque.

Tightening torque	8-12 N · m (0.8-1.2 kg-m, 6.0-8.5 lb-ft)
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PISTON

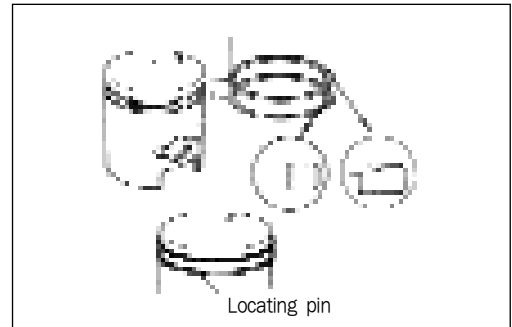


3-37 ENGINE

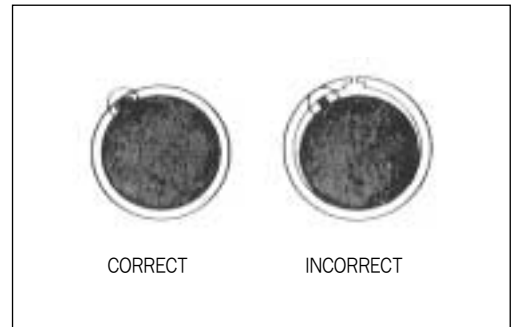
- Install the piston rings on the piston.
 - 1st - Keystone ring
 - 2nd - Rectangular ring
 - ↳ Expander ring

NOTE:

Position the ring so that the marking is on upside.



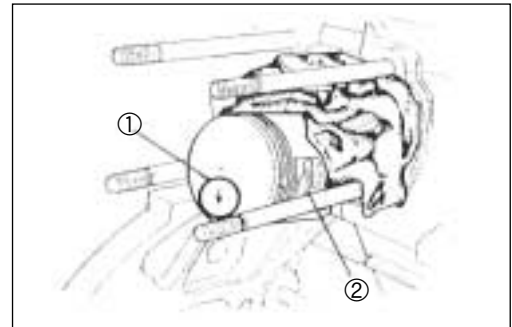
- It is extremely important that, when the piston is fed into the cylinder, each ring in place should be so positioned as to hug the locating pin as shown in the illustration.



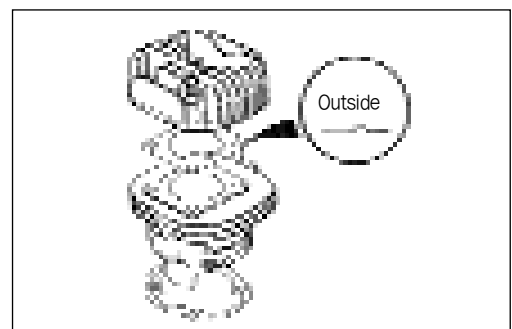
- Apply engine oil on the piston pin and install the piston to the conrod.

NOTE:

The arrow mark ① on the piston head should point the exhaust side.

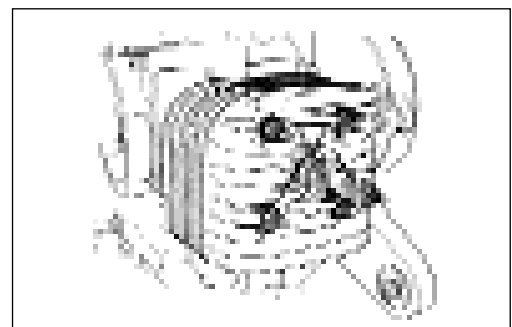


- The circlip should be mounted in such a position ② that the mating ends of the circlip do not coincide with the groove portion of the piston.
- Position the cylinder base gasket.
- Apply engine oil on the piston and cylinder wall surfaces and install the cylinder over the piston carefully.

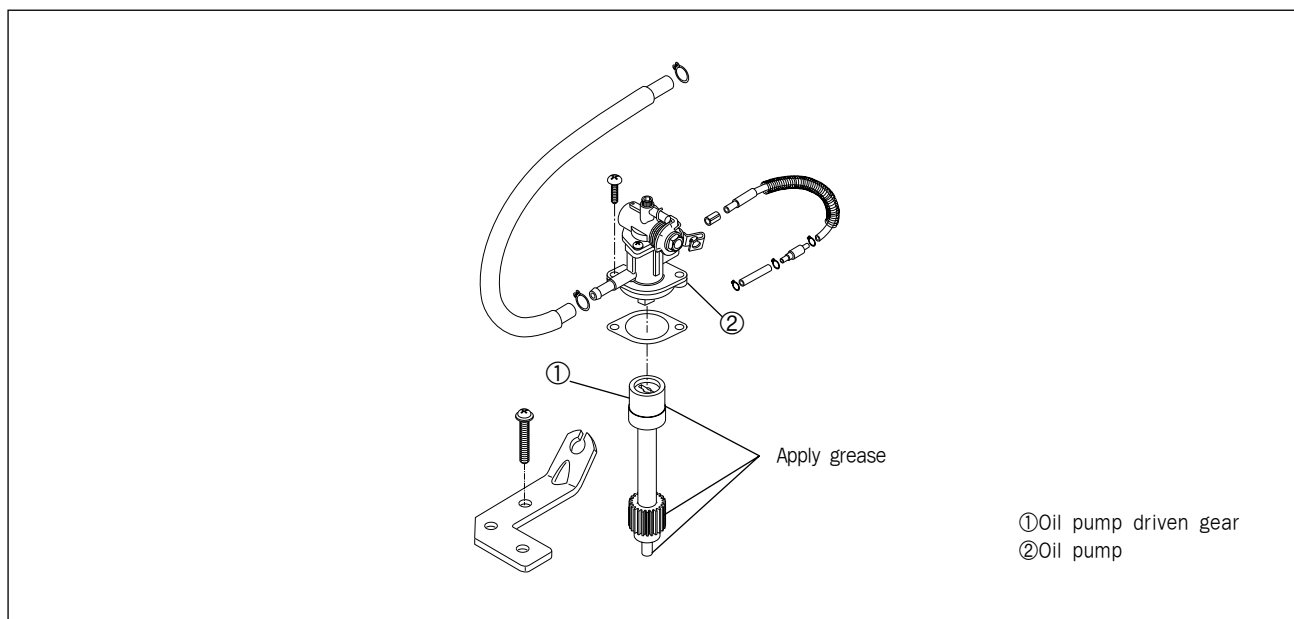


- Tighten the cylinder head nut to the specification.

Tightening torque	8-12 N · m (0.8-1.2 kg-m, 6.0-8.5 lb-ft)
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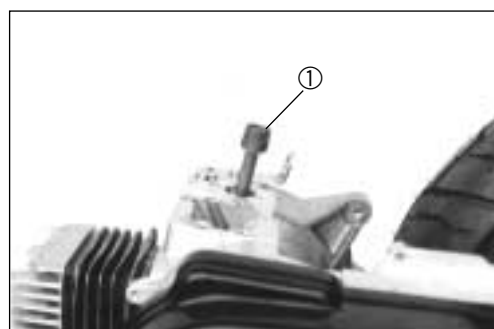


OIL PUMP AND INTAKE



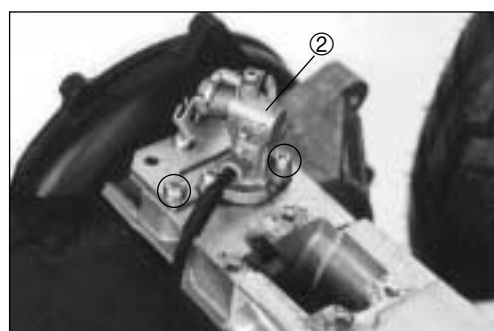
- Apply grease to the oil pump driven gear ① and install it to the crankcase.

99000-07000	Grease "G ₂ "
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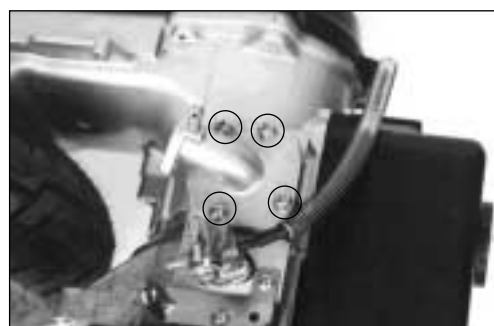
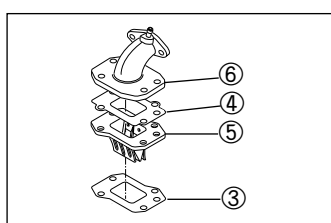


- Install the oil pump ② and tighten it to the specified torque.

Tightening torque	3-5 N · m (0.3-0.5 kg-m, 2.0-3.6 lb-ft)
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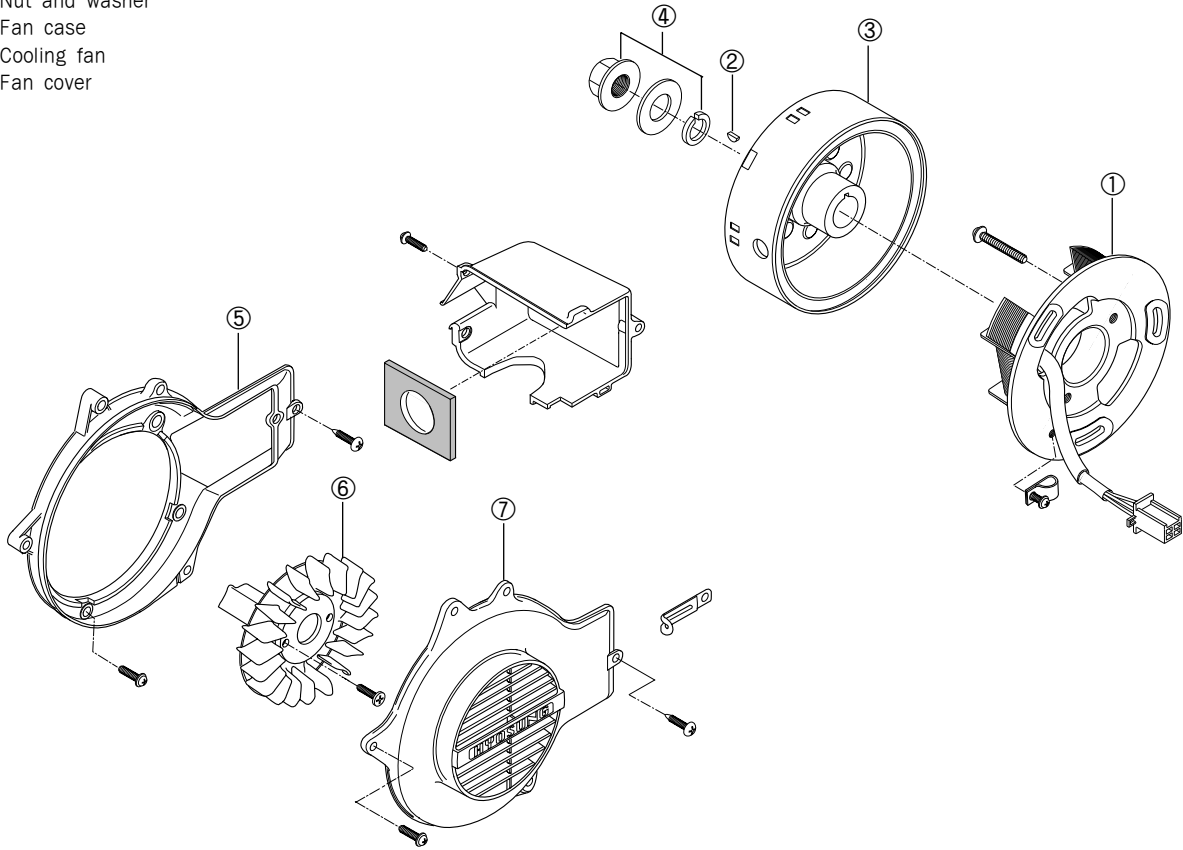
- Install the gaskets (③, ④) and intake pipe ⑥ with reed valve ⑤ to the crankcase.



3-39 ENGINE

MAGNETO

- ①Stator
- ②Key
- ③Magneto rotor
- ④Nut and washer
- ⑤Fan case
- ⑥Cooling fan
- ⑦Fan cover



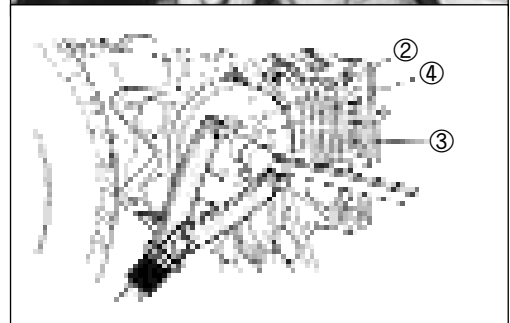
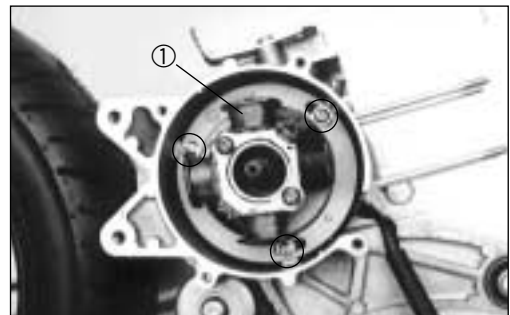
- Degrease the tapered portion of the crankshaft and also the magneto rotor.
- Install the stator ①.
- Install the key ②.
- Install the rotor ③.

- Apply THREAD LOCK “1324” to the rotor nut ④ and tighten it to the specified torque with the special tool.

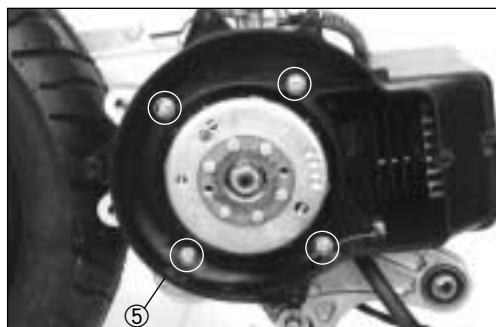
99000-32030	THREAD LOCK “1324”
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09930-40113	Rotor holder
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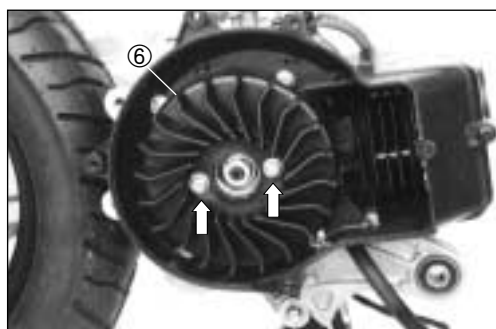
Tightening torque	35-45 N · m (3.5-4.5 kg-m, 25.5-31.0 lb-ft)
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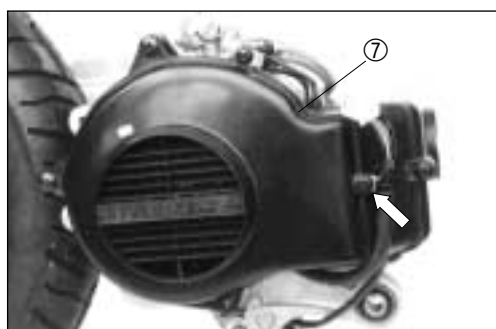
- Install the fan case ⑤.
- Install the magneto lead wire and starter motor lead wire.



- Install the cooling fan ⑥.



- Install the cooling fan cover ⑦.



MUFFLER

- Tighten the exhaust pipe bolts ① and muffler mounting bolts ② to the specified torque.

Tightening torque	8-12 N · m (0.8-1.2 kg-m, 6.0-8.5 lb-ft)
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