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**10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH**

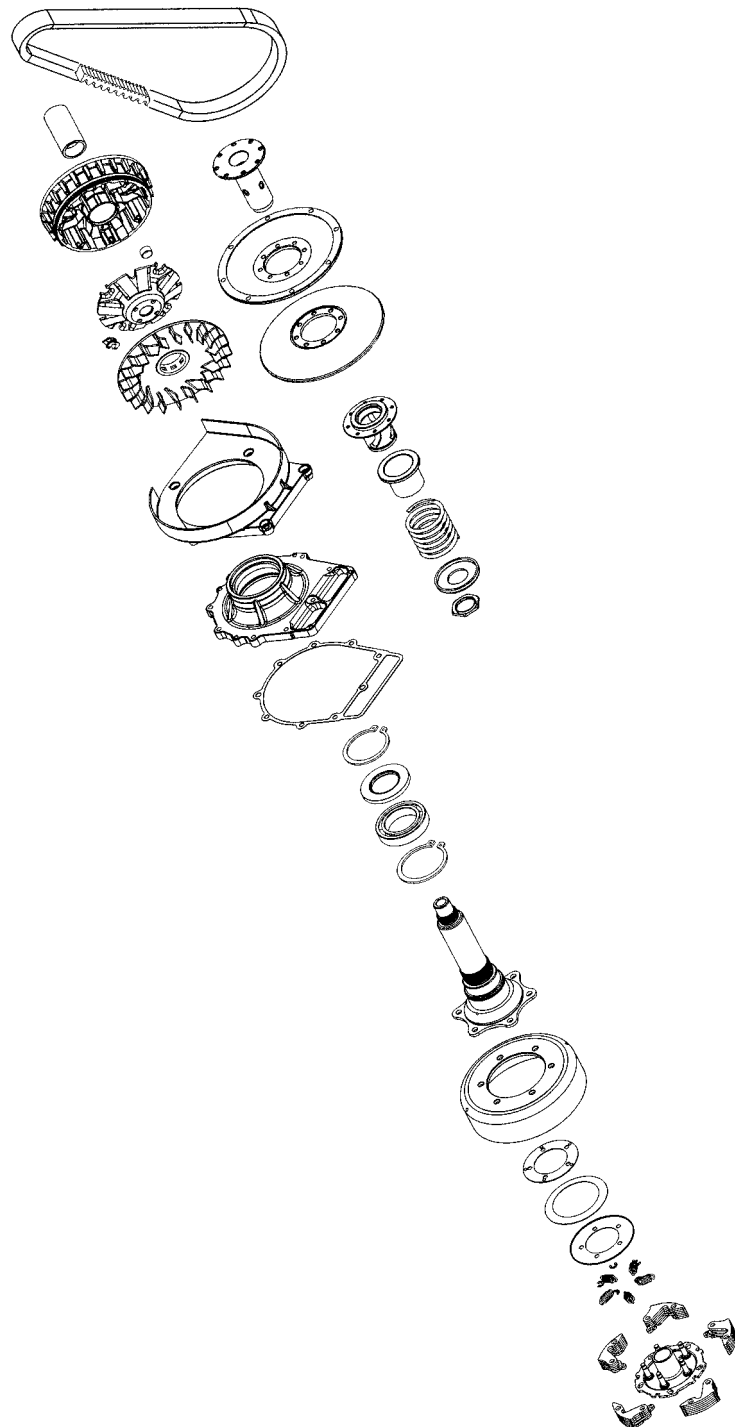
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**DRIVE PULLEY/DRIVEN PULLEY/CLUTCH**

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**SCHEMATIC DRAWING**

# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

## SERVICE INFORMATION

### GENERAL INSTRUCTIONS

- The drive pulley, clutch and driven pulley can be serviced with the engine installed.
- Avoid getting grease and oil on the drive belt and pulley faces. Remove any oil or grease from them to minimize the slipping of drive belt and drive pulley.
- Do not apply grease to the movable drive face and weight rollers.

### SPECIFICATIONS

Unit: mm (in)

Item	Standard	Service Limit
Drive belt width	34.1 (1.364)	30.8 (1.232)
Clutch shoe thickness	1.5 (0.06)	1 (0.04)
Driven pulley spring	124.3 (4.972)	121.3 (4.852)
Weight roller O.D.	29.9 (1.196)~30.1 (1.204)	29.5 (1.18)

### TORQUE VALUES

Drive pulley nut	14 kgf-m (140 N-m, 100.8 lbf-ft)	Apply oil to the threads
Clutch nut	14 kgf-m (140 N-m, 100.8 lbf-ft)	
Driven pulley nut	10 kgf-m (100 N-m, 72 lbf-ft)	Apply oil to the threads
Driven pulley assembly plate nut	7.5 kgf-m (75 N-m, 54 lbf-ft)	

### SPECIAL TOOLS

Oil seal & bearing install	A120E00014
Bearing puller	A120E00037
Y-type holder	A120E00056
Drive pulley holder	A120E00058
Driven pulley spring compressor	A120E00059
Lock nut wrench	A120E00067

### TROUBLESHOOTING

#### Engine starts but ATV won't move

- Worn drive belt
- Broken ramp plate
- Worn or damaged clutch lining
- Broken driven face spring

#### Engine stalls or ATV creeps

- Broken clutch weight spring

#### Lack of power

- Worn drive belt
- Weak driven face spring
- Worn weight roller
- Faulty driven face

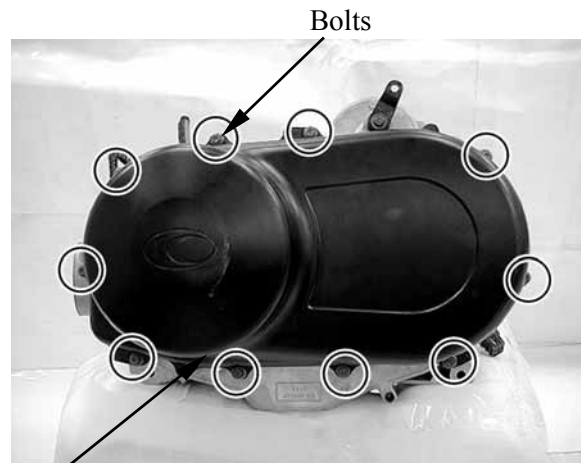
## 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

### LEFT CRANKCASE COVER REMOVAL/INSTALLATION

#### REMOVAL

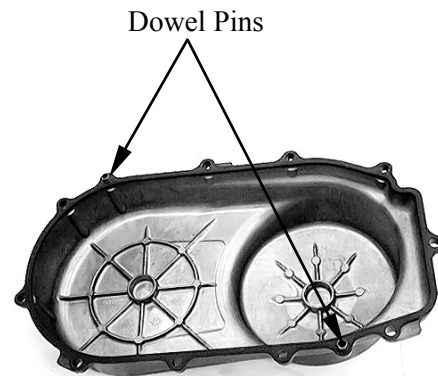
Remove the left footboard (refer to the “**FRAME COVERS**” section in the chapter 2).

Remove the ten bolts, remove the left crankcase cover and rubber gasket.



Left Front Cover

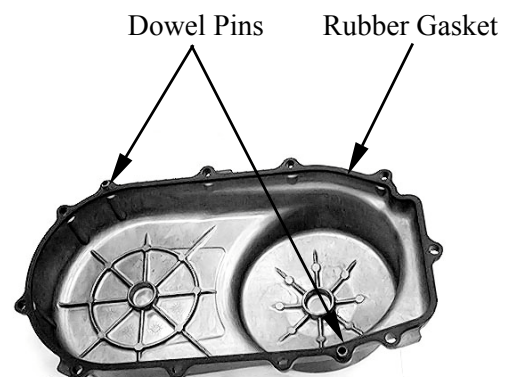
Remove the two dowel pins.



#### INSTALLATION

Install the rubber gasket onto the left crankcase cover.

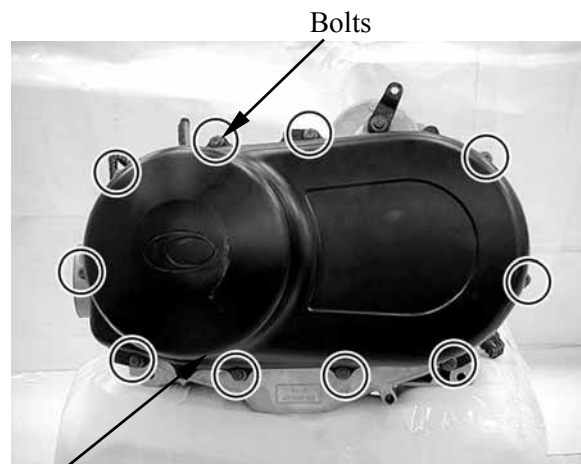
Install the two dowel pins onto the left crankcase cover.



## **10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH**

Install the left crankcase cover and tighten the ten bolts diagonally to specified torque.

**Torque:** 1 kgf-m (10 N-m, 7.2 lbf-ft)



Left Front Cover

### DRIVE PULLEY, DRIVE V-BELT AND DRIVEN PULLEY REMOVAL/INSPECTION/INSTALLATION

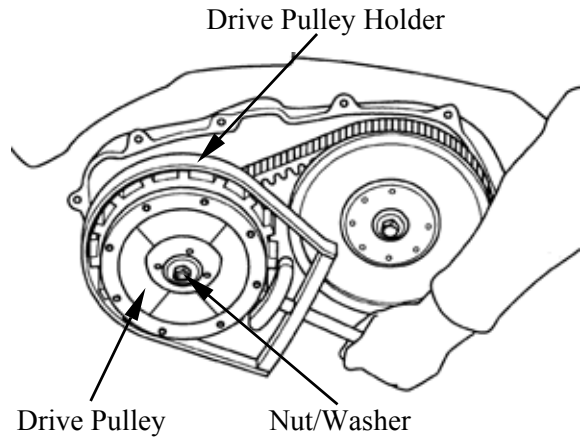
#### REMOVAL

Use the special tool to hold the drive pulley, then remove the nut and washer.

#### Special tool:

Drive pulley holder      A120E00058

Remove the drive pulley.

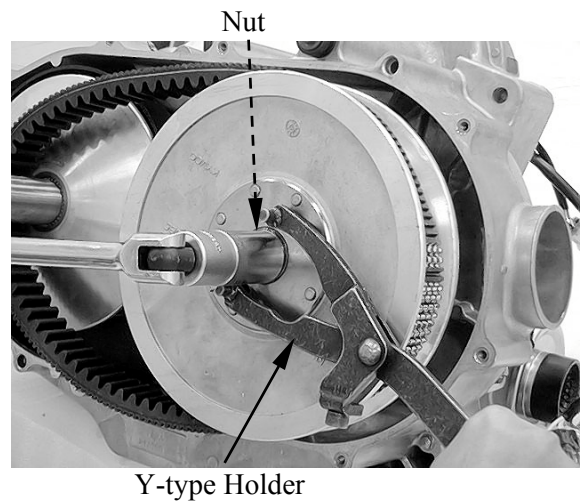


Use the special tool to hold the driven pulley, then remove the nut.

#### Special tool:

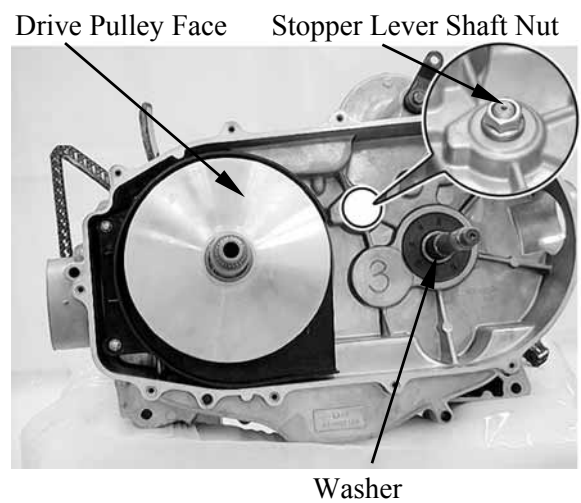
Y-type holder      A120E00056

Remove the driven pulley and V-belt.



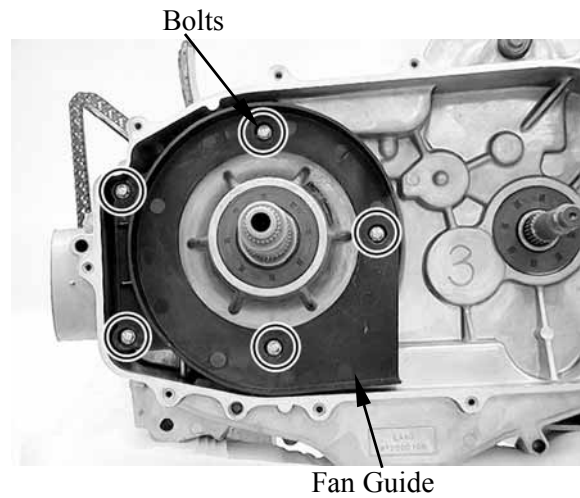
Remove the driven pulley washer.  
Remove the drive pulley face.

\* Do not loosen the stopper lever shaft nut, it may cause stopper lever bolt loosen. To tighten the stopper lever bolt must remove the crankcase (refer to the “**TRANSMISSION REMOVAL/INSPECTION/INSTALLATION**” section in the chapter 11).



# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

Remove the five bolts and then remove the fan guide.

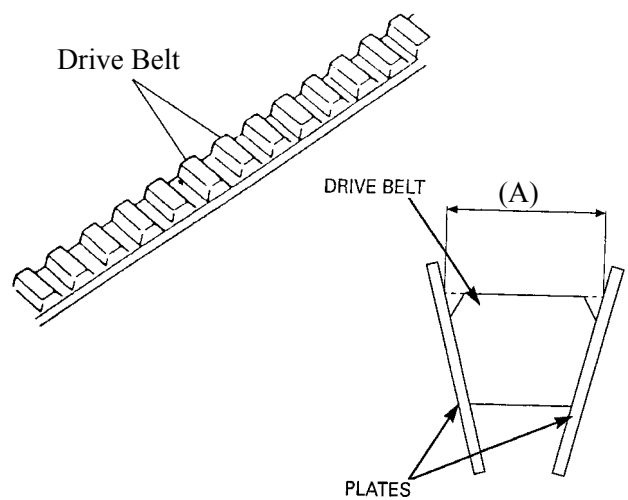


## INSPECTION

Inspect the drive belt for cracks, scaling, chipping or excessive wear.  
 Measure the V-belt width

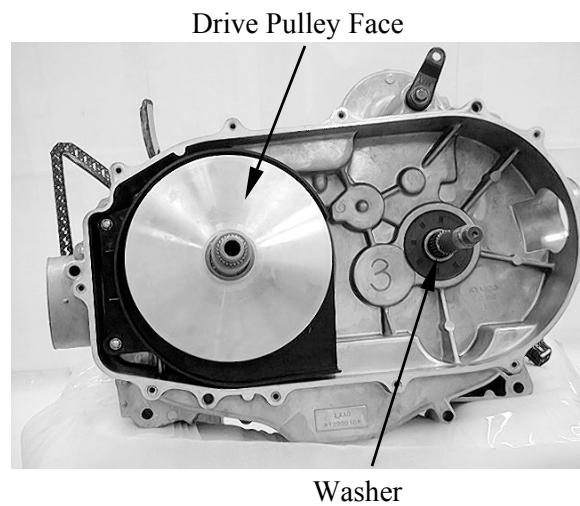
**Service limit (A):** 30.8 mm (1.232 in)

Replace the drive belt if out of specification.



## INSTALLATION

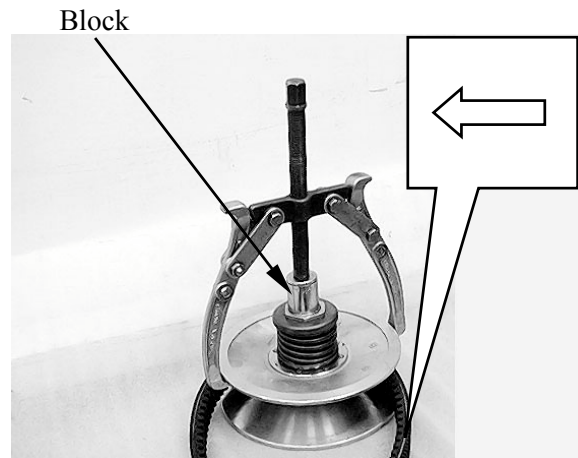
Install the fan guide.  
 Install the drive pulley face.  
 Install the driven pulley washer.



# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

Place a block on the plate nut.  
 Compress the spring by using a commercially available puller, install the drive belt.

- \*
- The drive belt should be installed so that the arrows on the drive belt periphery point in the normal turning direction.
  - The drive belt contact surface of the driven face should be thoroughly cleaned.

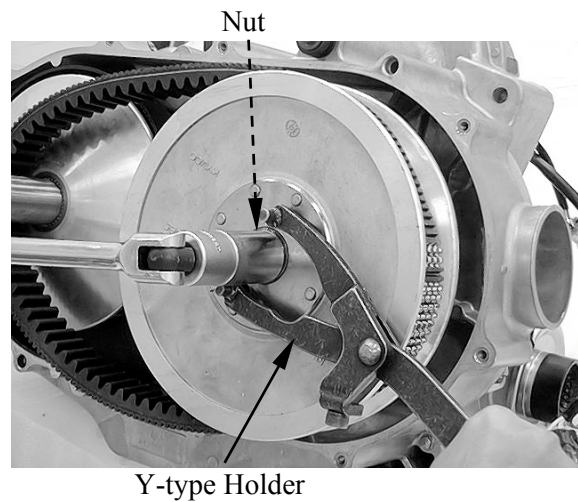


Install the driven pulley assembly and drive V-belt.

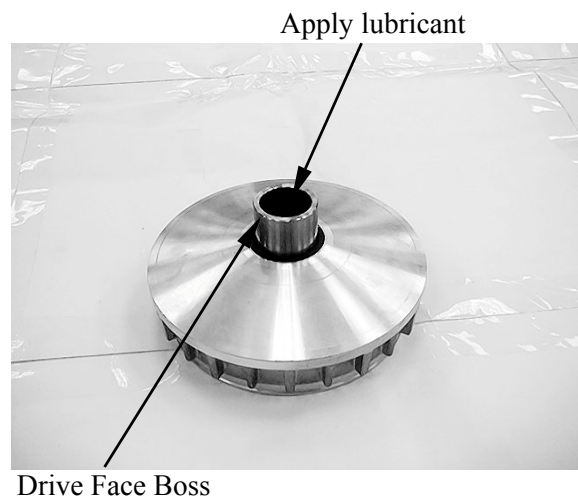
Use the special tool to hold driven pulley, then tighten the nut to the specified torque.

**Torque:** 10 kgf-m (100 N-m, 72 lbf-ft)  
 Apply oil to the threads

**Special tools:**  
 Y-type holder      A120E00056



Apply lubricant to the drive face boss inner surface, then install the drive pulley.





## 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

Install the drive pulley assembly.  
Install the washer and nut.

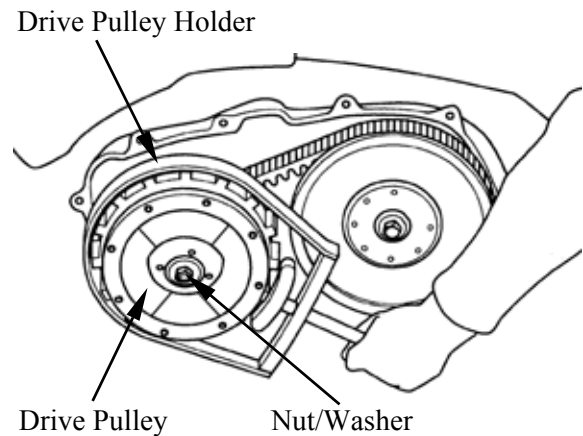
\* Make sure the "OUT SIDE" marks on the washer faces the left crankcase cover.

Use the special tool to hold drive pulley,  
then tighten the nut to the specified torque.

**Torque:** 14 kgf-m (140 N-m, 100.8 lbf-ft)  
Apply oil to the threads

**Special tool:**

Drive pulley holder      A120E00058

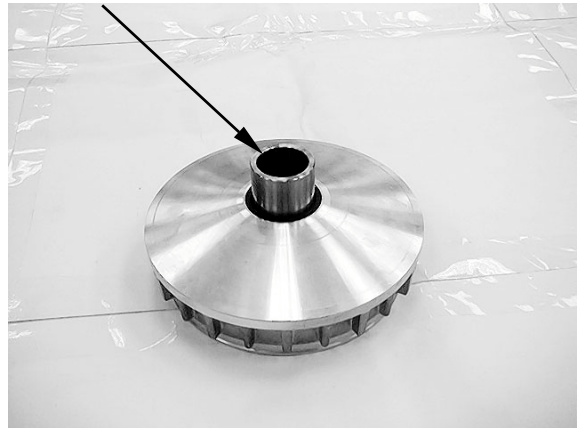


**DRIVE PULLEY  
DISASSEMBLY/INSPECTION/  
ASSEMBLY****DISASSEMBLY**

Remove the drive pulley (refer to “**DRIVE PULLEY AND DRIVEN PULLEY REMOVAL/INSTALLATION**” section)

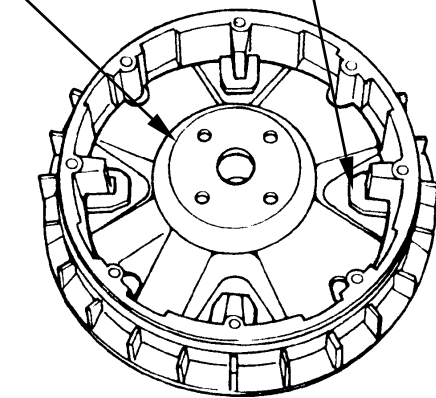
Remove the drive face boss.

Drive Face Boss



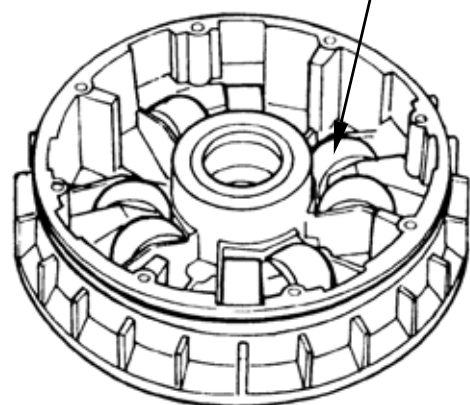
Remove the ramp plate and four slide pieces.

Ramp Plate      Slide Pieces



Remove the eight weight rollers.

Weight Rollers



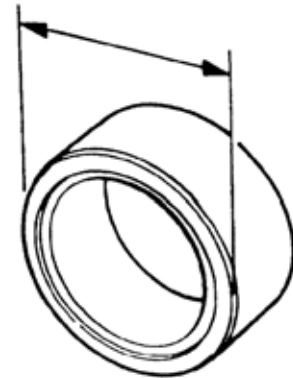
# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

## INSPECTION

### Weight rollers

Check each roller for wear or damage.  
Measure outside diameter.

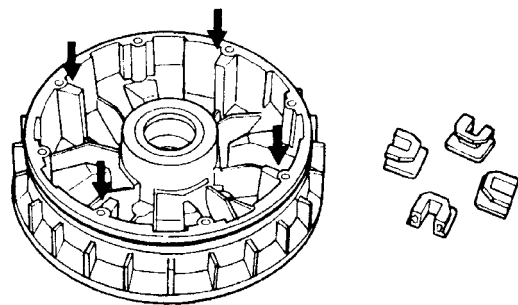
**Service limit:** 29.5 mm (1.18 in)



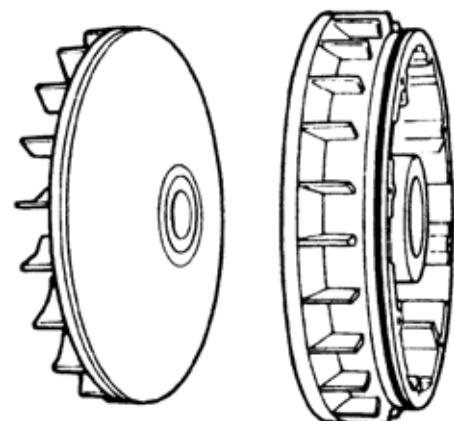
### Movable drive face/Slide pieces/Drive pulley face

Check the slide pieces and movable drive face splines for wear, cracks or damage.

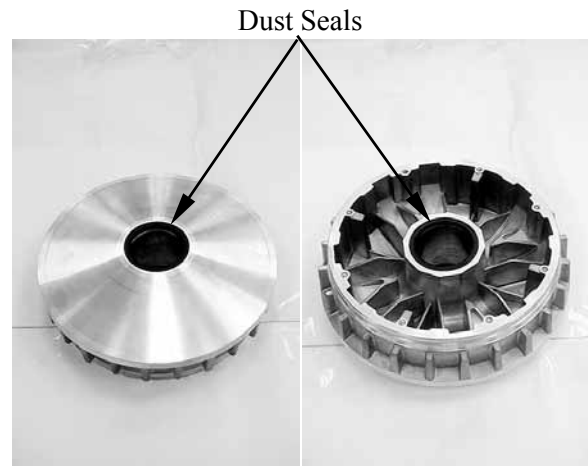
Check the ramp plate for cracks or damage.



Check the movable drive face and drive pulley face cracks or damage.



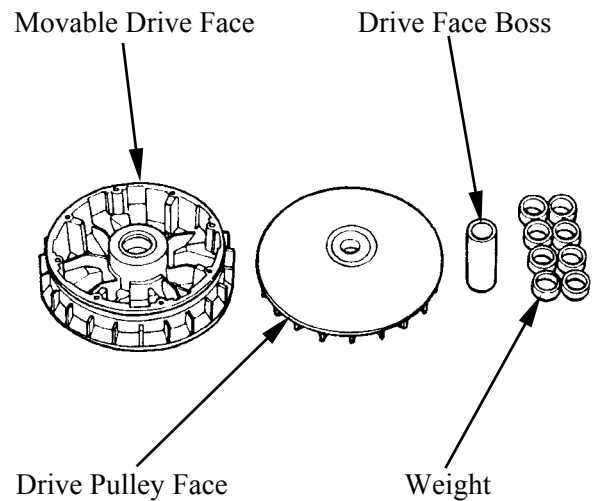
Check the dust seals on the movable drive face for wear or damage.



### ASSEMBLY

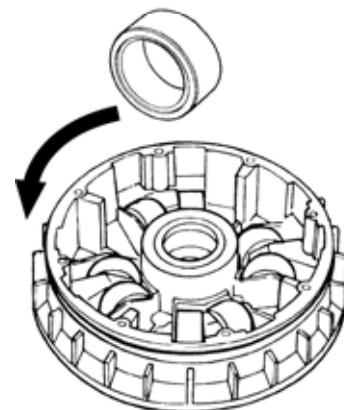
Clean the movable drive face, drive pulley face, weight rollers, slide pieces, ramp plate and drive face boss.

\* Remove any excess grease.



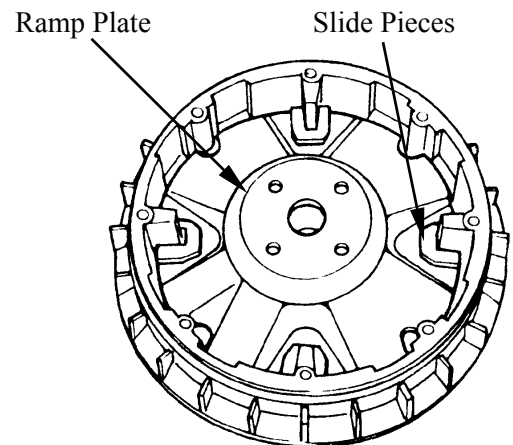
Install the weight rollers.

\* The direction of all weight rollers is the same. The thin side is towards to counterclockwise.



## **10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH**

Install the slide pieces and ramp plate.



Install the drive face boss.



### DRIVEN PULLEY DISASSEMBLY/INSPECTION/ ASSEMBLY

#### DISASSEMBLY

Remove the driven pulley (refer to the “**DRIVE PULLEY AND DRIVEN PULLEY REMOVAL/INSTALLATION**” section in this chapter).

Use the special tool to remove the nut.

#### Special tool:

Driven pulley spring compressor

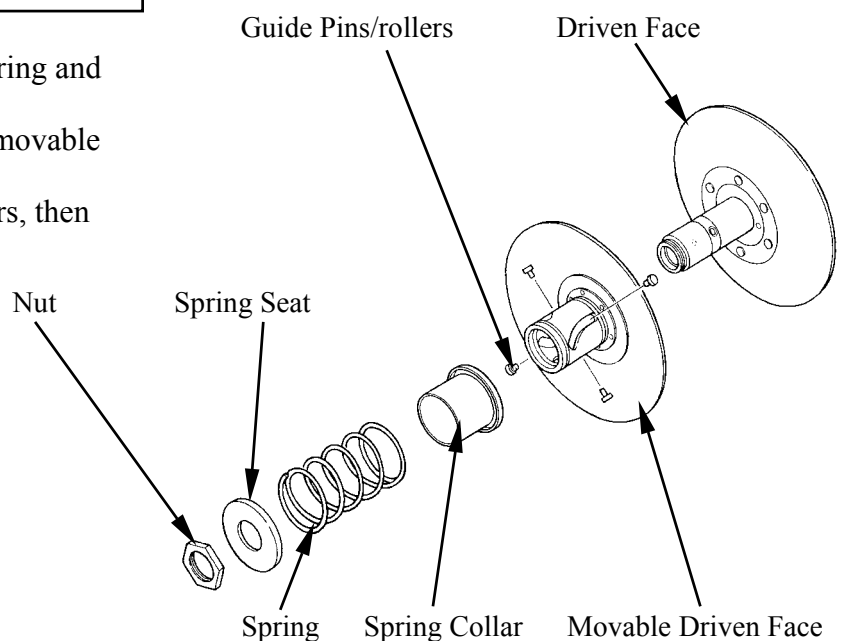
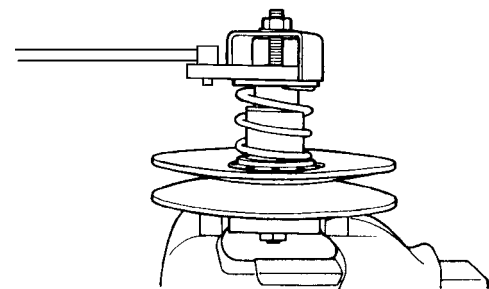
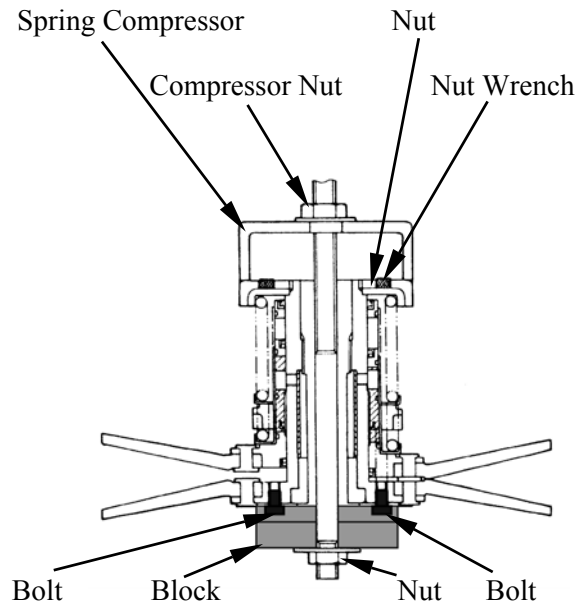
A120E00059

- \*
- Install the block and bolts, then tighten the bolts.
  - Attach the block, nut wrench and spring compressor to the driven pulley assembly.
  - Place the block in a vise and secure it.
  - Tighten the spring compressor nut and compress the spring.
  - Loosen the nut with the nut wrench.
  - Remove the nut.
  - Remove the spring compressor and nut wrench.

Remove the spring seat on the spring and spring.

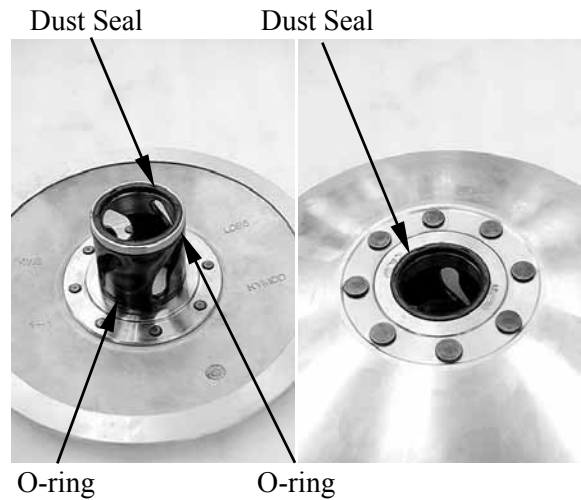
Remove the spring collar on the movable driven face.

Remove the four guide pins/rollers, then remove the movable driven face.



# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

Remove the O-rings and dust seals from the movable driven face.

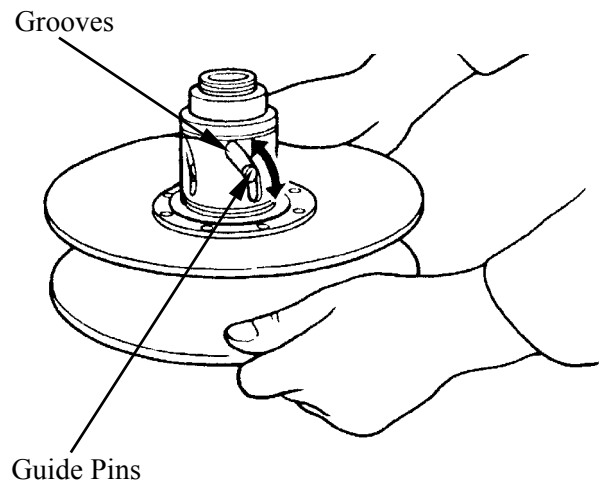


## INSPECTION

Check the driven pulley for smooth operation.  
 If any scratches or damage is found then replace as a set.

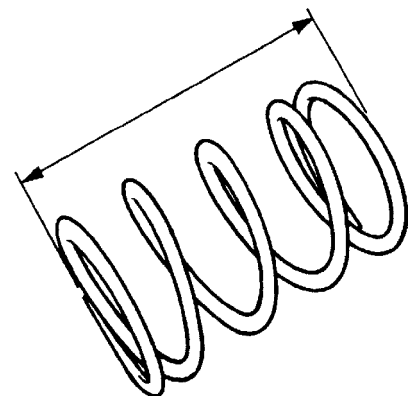
Check the torque cam grooves for wear or damage.

Check guide pins and rollers for wear or damage.  
 If any scratches or damage is found then replace as a set.



Check the spring for damage.  
 Measure the spring free length.

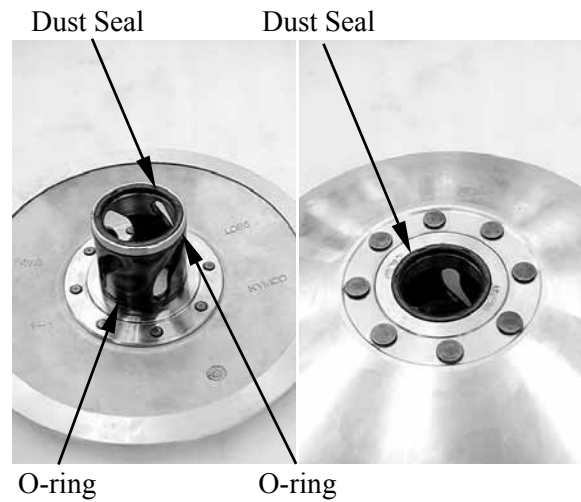
**Service limit:** 121.3 mm (4.852 in)



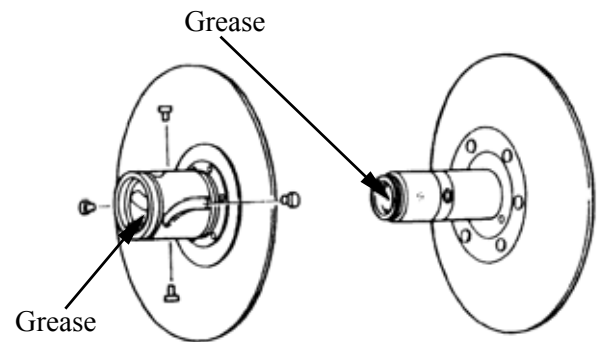
### ASSEMBLY

Clean any oil from the drive belt sliding surfaces on the driven face.

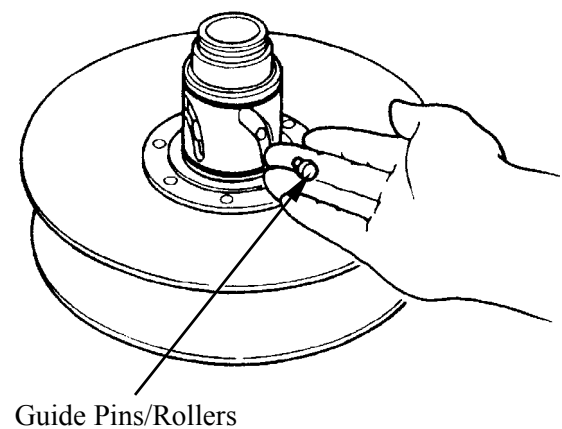
Apply grease to lips of the new dust seals and install into the movable driven face.  
Coat new O-rings with grease and install them into the movable driven face grooves.



Install the movable driven face onto the driven face.  
Install the guide rollers and guide roller pins.  
Filling 8 g of grease to each guide groove.



Install the guide pins/rollers.





# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

Install spring collar.

Use the special tool to install spring and spring seat, then install and tighten the nut to the specified torque.

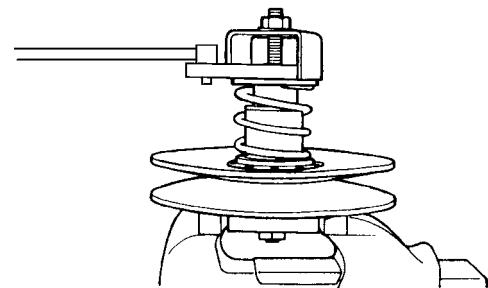
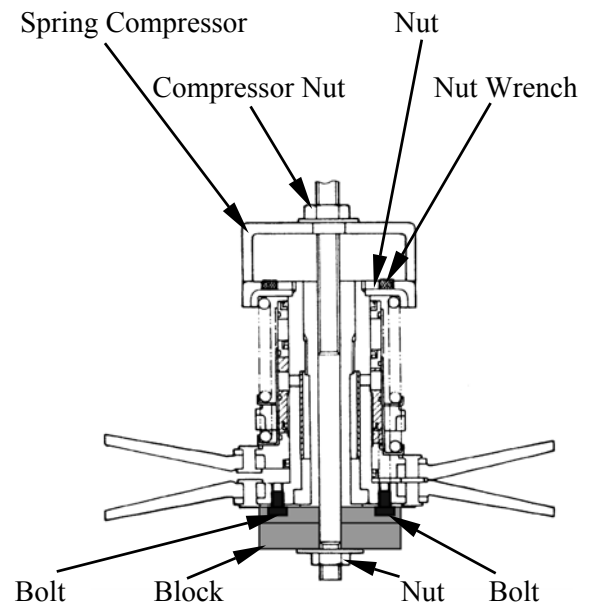
**Torque:** 7.5 kgf-m (75 N-m, 54 lbf-ft)

**Special tool:**

Driven pulley spring compressor

A120E00059

- \* **●** Attach the block, nut, nut wrench and spring compressor to the driven pulley assembly.
- Place the block in a vise and secure it.
- Tighten the spring compressor nut and compress the spring.
- Install the nut and tighten it to the specified torque with the nut wrench.
- Remove the spring compressor and nut wrench.



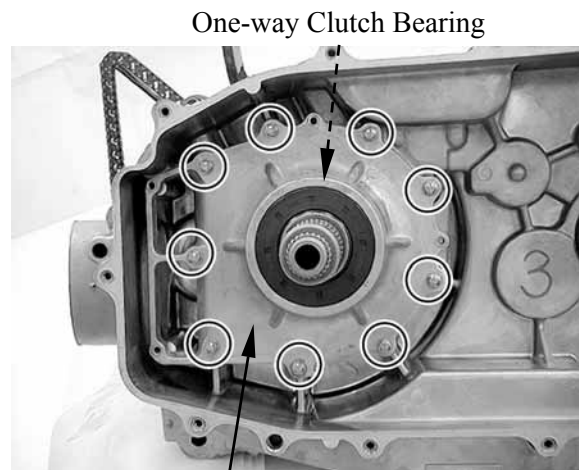
### CLUTCH REMOVAL/INSTALLATION

#### REMOVAL

Remove the fan guide (refer to the “**DRIVE PULLEY AND DRIVEN PULLEY REMOVAL/INSTALLATION**” section in this chapter).

Remove the nine bolts and then remove the clutch housing assembly and one-way clutch bearing.

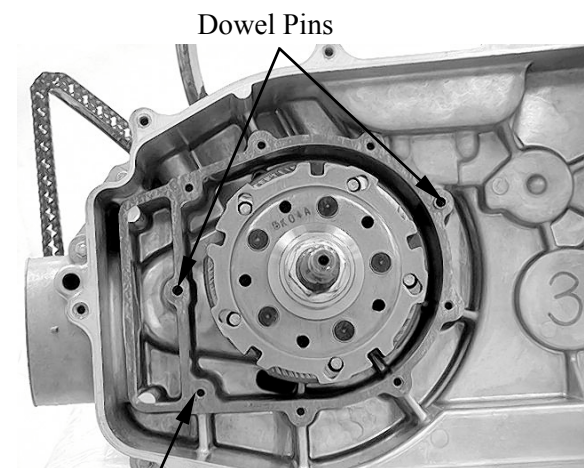
\* Working in crisscross pattern, loosen each bolt 1/4 of a turn. Remove them after all of them are loosened.



One-way Clutch Bearing

Clutch Housing Assembly

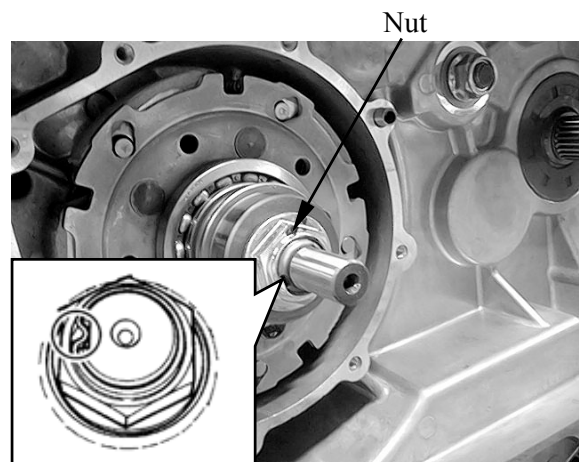
Remove the two dowel pins and gasket.



Dowel Pins

Gasket

Using a chisel, unlock the nut.



Nut

# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

Use the special tool to hold clutch carrier assembly.

**Special tool:**

Y-type holder                      A120E00056

**Not USA type:**

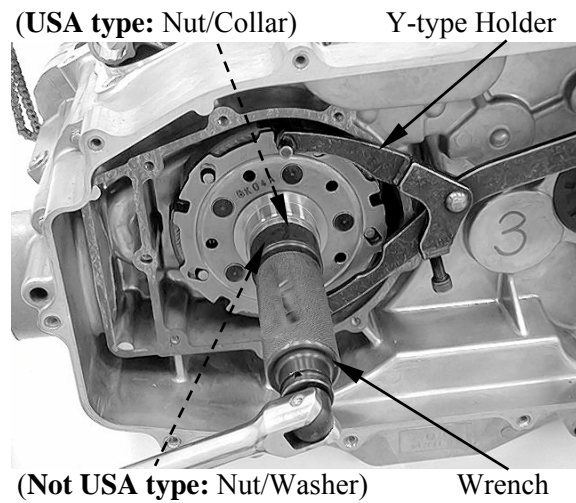
Use the special tool to remove the nut and washer.

**Special tool:**

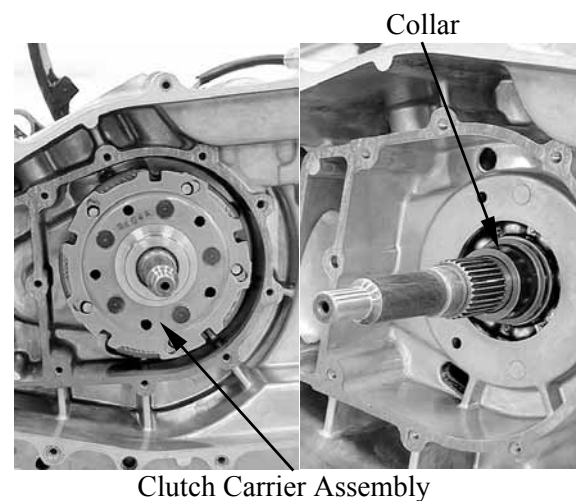
Lock nut wrench                      A120E00067

**USA type:**

Remove the nut and collar.



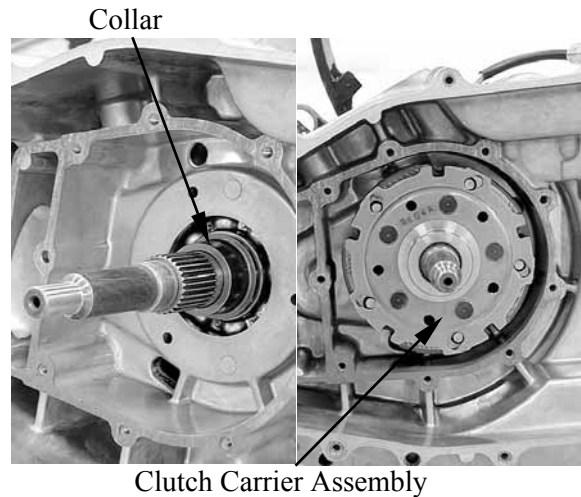
Remove the clutch carrier assembly and collar.



# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

## INSTALLATION

Apply clean engine oil to the clutch carrier assembly and collar, then install the collar and clutch carrier assembly.



Install the washer (**Not USA type**).

Install the collar (**USA type**).

Use the special tools to install and tighten the nut to the specified torque.

**Torque:** 14 kgf-m (140 N-m, 100.8 lbf-ft)

**Special tool:**

Y-type holder A120E00056

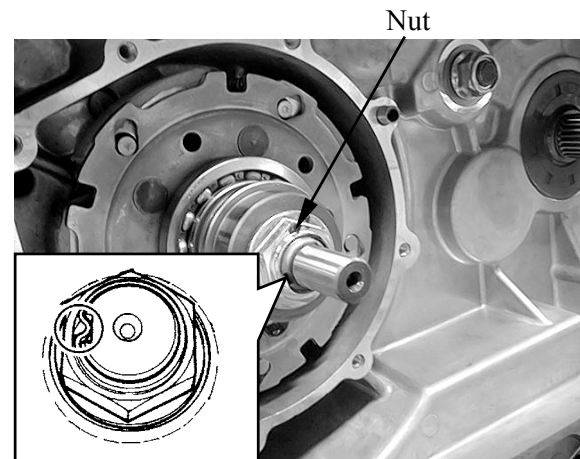
Lock nut wrench (**Not USA type**)  
A120F00067

(**Not USA type:** Washer)



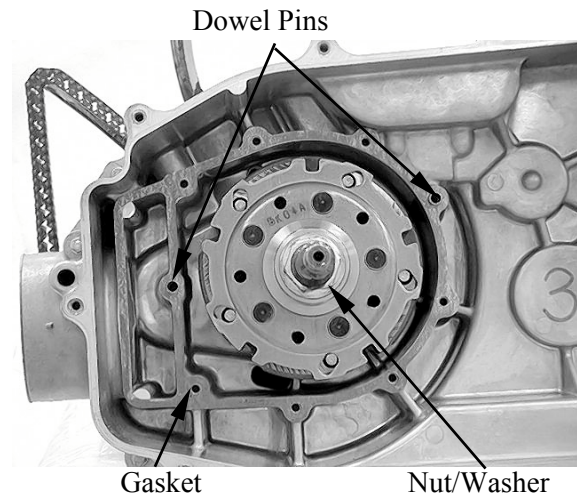
(**USA type:** Collar)

Stake the nut with a center punch.



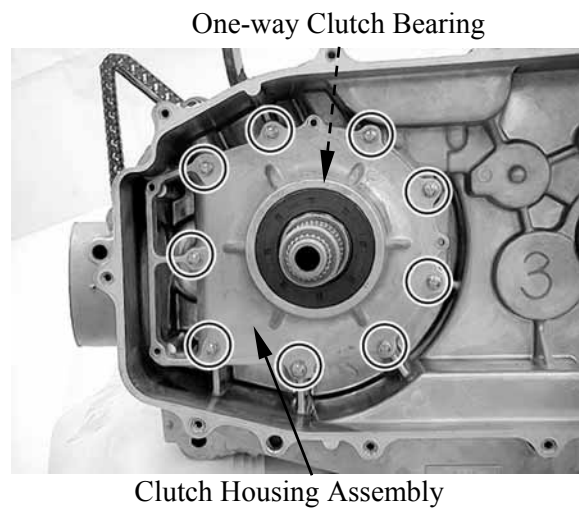
## 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

Install the dowel pins and gasket.



Apply molybdenum disulfide grease to the one-way clutch bearing, then install it. Install the clutch housing and tighten the bolts to the specified torque in a crisscross pattern in 2-3 steps.

**Torque:** 1 kgf-m (10 N-m, 7.2 lbf-ft)



Clutch Housing Assembly



**CLUTCH  
DISASSEMBLY/INSPECTION/  
ASSEMBLY**
**DISASSEMBLY**

Remove the clutch housing and clutch carrier assembly (refer to the “**CLUTCH REMOVAL/INSTALLATION**” section in this chapter).

Remove the one-way clutch bearing from the clutch housing.

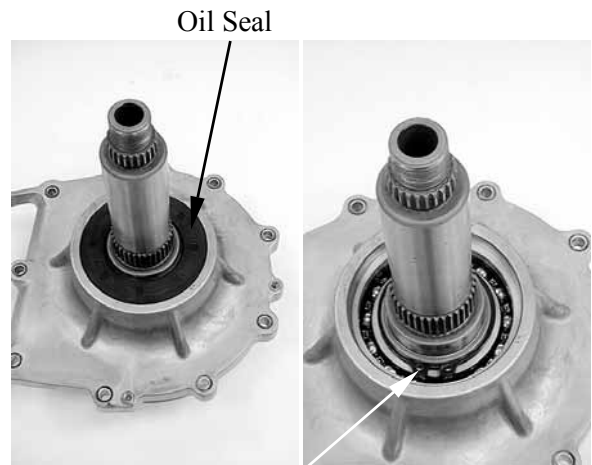


One-way Clutch Bearing

**Clutch housing removal (not USA type):**

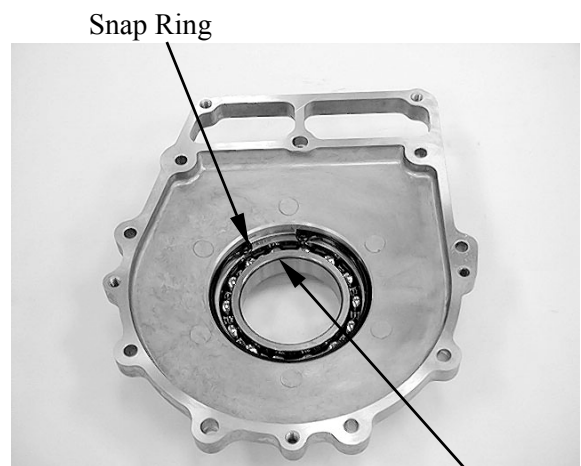
Remove the oil seal.

Remove the snap ring, then remove the clutch housing.



Snap Ring

Remove the snap ring, then remove the bearing.

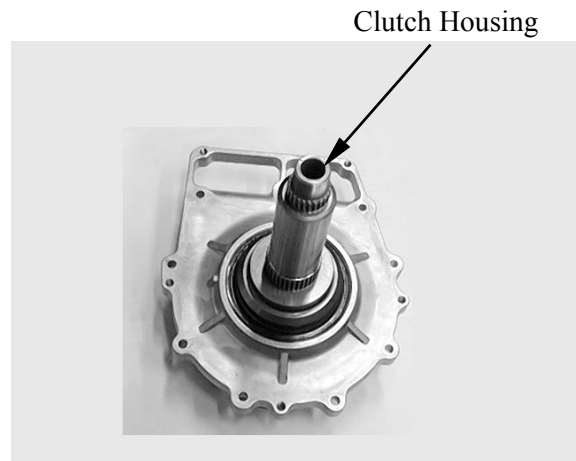


Bearing

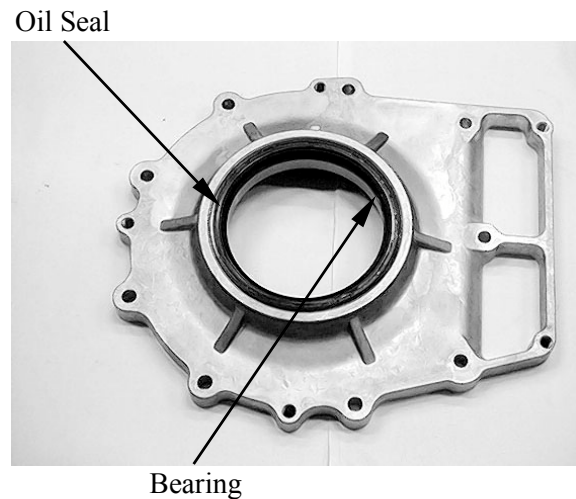
## **10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH**

### **Clutch housing removal (USA type):**

Remove the clutch housing.



Remove the oil seal, then remove the bearing.

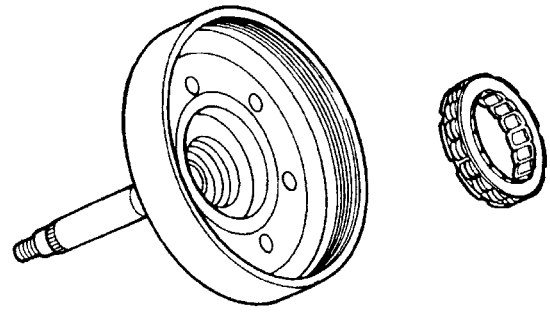


**INSPECTION**

Check the clutch housing for heat damage, wear or damage.

Check the one-way clutch bearing for chafing, wear or damage.

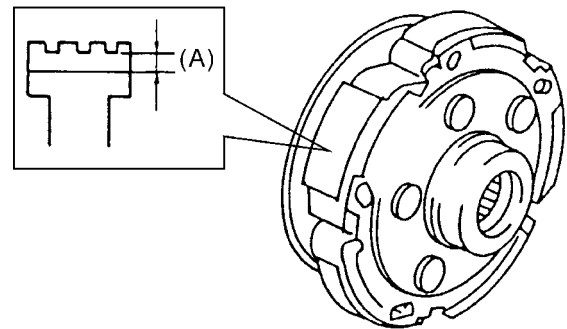
\* Replace the one-way clutch assembly and clutch housing as a set.



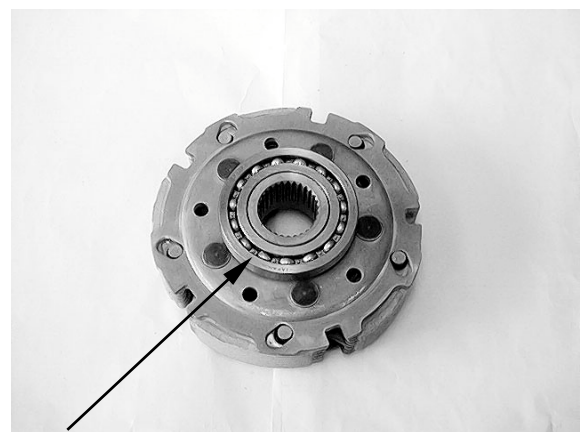
Check the clutch shoe for heat damage.

Measure the clutch shoe thickness.

**Service limit (A):** 1 mm (0.04 in)


**Only USA type:**

Turn the crankshaft bearing for smoothly and check for excessive play.



Bearing



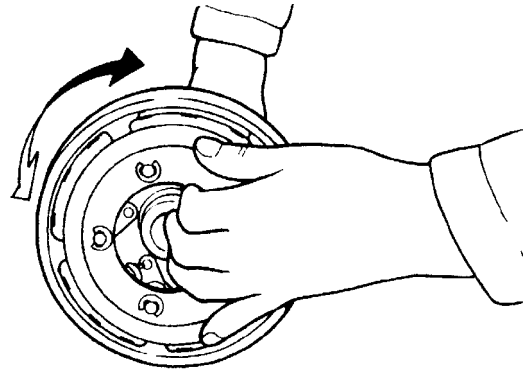
# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

## Check operation (not USA type):

Install the one-way clutch bearing and clutch carrier assembly to the clutch housing and hold the clutch carrier assembly.

When turning the clutch housing clockwise, the clutch housing should turn freely. If not, the one-way clutch assembly is faulty. Replace it.

When turning the clutch housing counterclockwise, the clutch housing and crankshaft should be engaged. If not, the one-way clutch assembly is faulty. Replace it.



## Check operation (USA type):

Install the one-way clutch bearing and collar to the clutch housing and hold the collar.

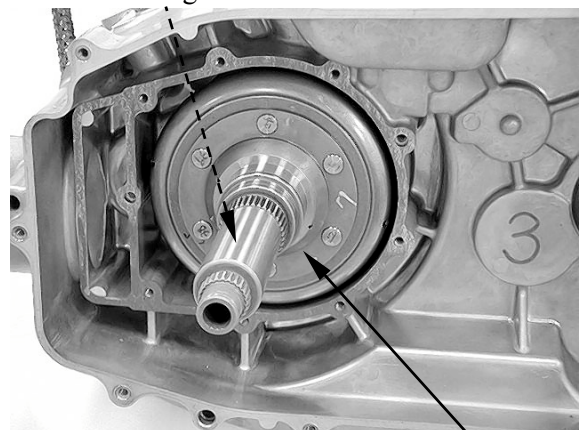
When turning the clutch housing clockwise, the clutch housing should turn freely. If not, the one-way clutch assembly is faulty. Replace it.

When turning the clutch housing counterclockwise, the clutch housing and crankshaft should be engaged. If not, the one-way clutch assembly is faulty. Replace it.

Install the clutch housing to the crankshaft.

When turning the clutch housing clockwise or counterclockwise, the clutch housing should turn smoothly. If not, the needle bearing or the clutch housing is damaged, then replace the clutch housing.

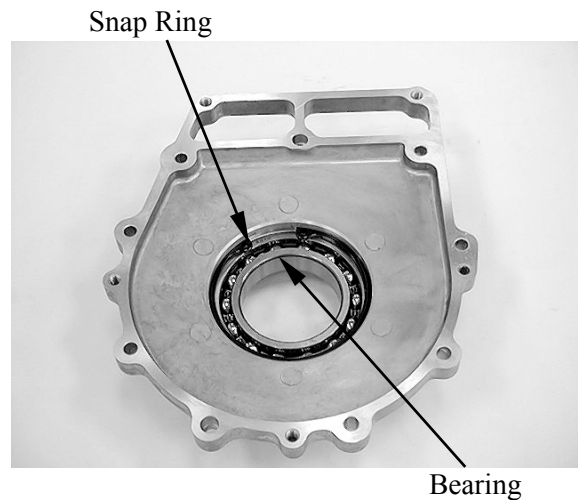
Needle Bearing



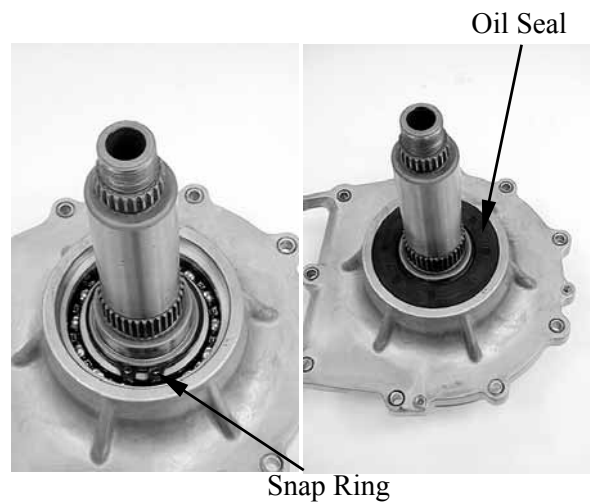
Clutch Housing

**ASSEMBLY****Clutch housing installation (not USA type):**

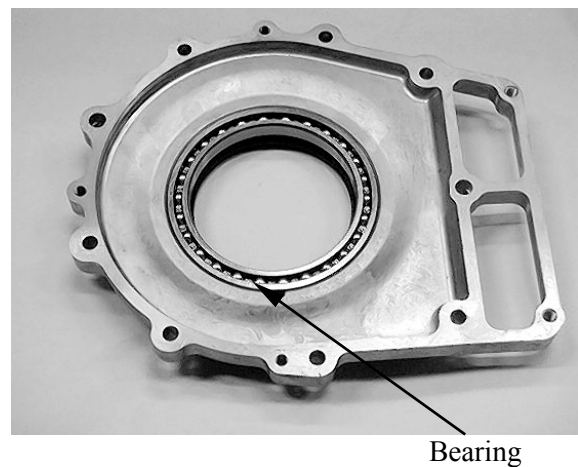
Apply clean engine oil, then install the new bearing.  
Install the snap ring.



Install the clutch housing.  
Install the snap ring.  
Apply lightweight lithium-soap base grease to the new oil seal lip, then install the new oil seal.

**Clutch housing installation (USA type):**

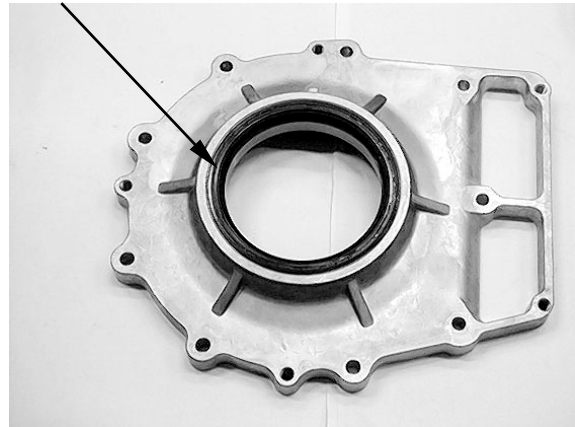
Apply clean engine oil, then install the new bearing.



# 10. DRIVE PULLEY/DRIVEN PULLEY/CLUTCH

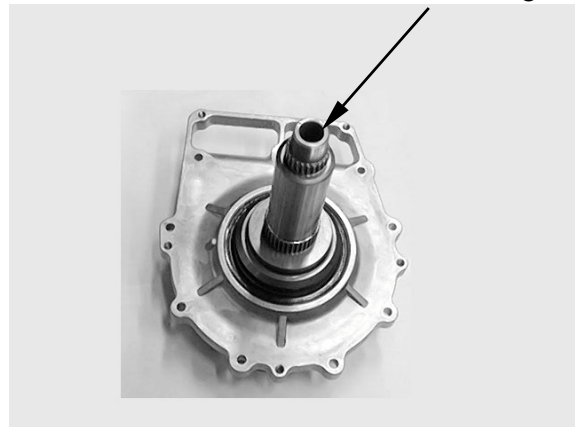
Apply lightweight lithium-soap base grease to the new oil seal lip, then install the new oil seal.

Oil Seal



Install the clutch housing.

Clutch Housing



### One-way clutch bearing installation:

Install the one-way clutch bearing into the clutch housing.

\* The one-way clutch bearing should be installed in the clutch carrier assembly with the arrow mark and "OUT SIDE" mark facing toward the clutch carrier assembly.

