

Product: WHEEL DOZER

Model: 854G WHEEL DOZER 1JW

Configuration: 854G Wheel Tractor 1JW00001-UP (MACHINE) POWERED BY 3508B Engine

Disassembly and Assembly

3500 and 3500B High Displacement Engines for Caterpillar Built Machines

Media Number -SEN1126-33

Publication Date -01/07/2015

Date Updated -14/09/2018

i02415754

Flywheel - Remove and Install

SMCS - 1156-010

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	2
B	-	Guide Bolts 1 - 14 NF by 8 inch	2
C	2D-1201	Eyebolts	2

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Remove the magnetic pickups.
-

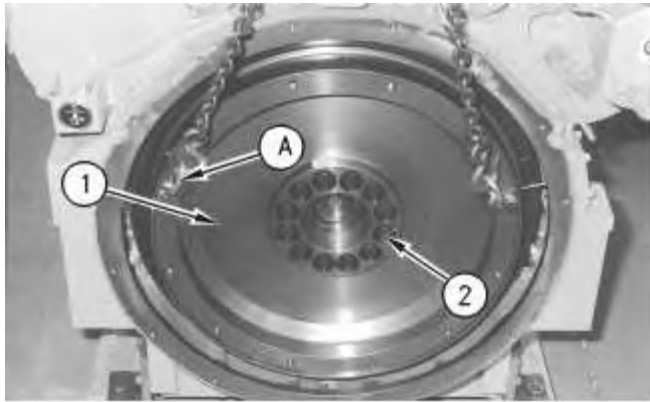


Illustration 1

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2. Install Tooling (A) on flywheel (1) and attach a suitable lifting device. The weight of flywheel (1) is approximately 167 kg (370 lb).
3. Remove two bolts (2) on each side of the crankshaft.
4. Install Tooling (B).
5. Remove remaining bolts (2).
6. Remove flywheel (1).

Use the following procedure if flywheel (1) is not easily separated from the crankshaft:

- a. Install Tooling (C) in each side of flywheel (1).
- b. Use a prybar to remove flywheel (1) from the crankshaft.

Installation Procedure

Table 2

Required Tools			
Tool	Part Number	Part Description	Qty
A	138-7573	Link Bracket	2
B	-	Guide Bolts 1 - 14 NF by 8 inch	2

NOTICE

Keep all parts clean from contaminants.

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1. Inspect the condition of the flywheel ring gear. Use the following procedure in order to replace the ring gear, if necessary.
 - a. Remove the damaged ring gear from the flywheel.
 - b. Raise the temperature of the new ring gear.
 - c. Install the gear on the flywheel. Ensure that the chamfer of the gear teeth will be toward the pinion of the starting motor.

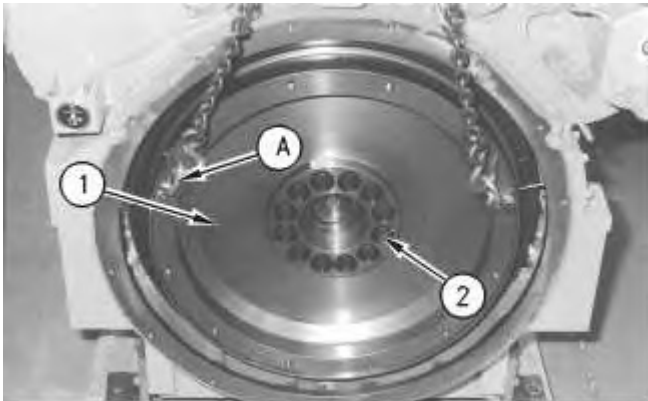


Illustration 2

g00911678

2. Install Tooling (B) in the end of the crankshaft.
 3. Install Tooling (A) onto flywheel (1) and attach a suitable lifting device. The weight of flywheel (1) is approximately 167 kg (370 lb).

Note: Ensure that the mark on flywheel (1) is aligned with the mark on the crankshaft.
 4. Lift flywheel (1) into position onto Tooling (B).
 5. Apply clean engine oil to bolts (2) and install bolts (2).
 6. Remove Tooling (A) and Tooling (B). Install remaining two bolts (2). Tighten bolts (2) to the correct torque.

Note: Refer to Specifications, "Flywheel" for the correct torque.
 7. Install the magnetic pickups.
-

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i03565063

Crankshaft Rear Seal and Wear Sleeve - Remove

SMCS - 1161-011; 7558-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	1U-7600	Slide Hammer Puller	1
B	6V-3143 or 1U-7325	Distorter Adapter	1
C	5P-7409	Sleeve Distorter	1

Start By:

- A. Remove the flywheel. Refer to Disassembly and Assembly, "Flywheel - Remove and Install".

NOTICE

Keep all parts clean from contaminants.

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NOTICE

Every time that the crankshaft seal is removed from the wear sleeve, a new wear sleeve and crankshaft seal must be installed.

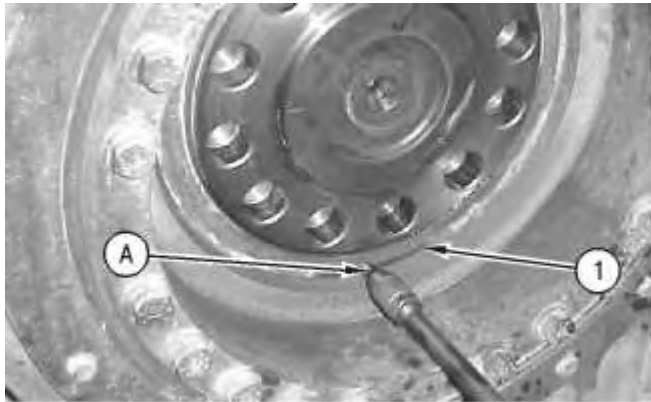


Illustration 1

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1. Drill three evenly spaced holes in crankshaft rear seal (1) . Use Tooling (A) in order to remove crankshaft rear seal (1) .

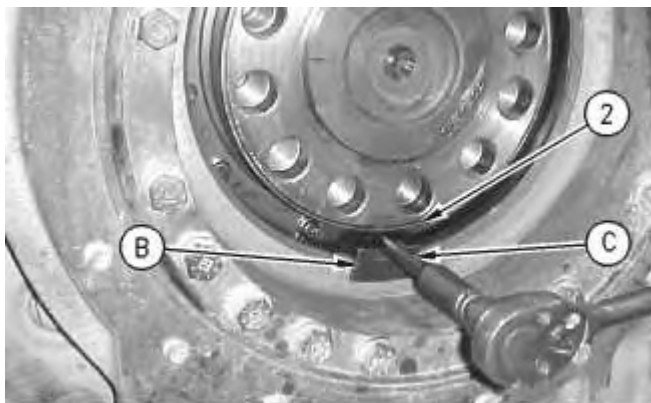


Illustration 2

g00659240

2. Insert Tooling (B) between the rear housing and wear sleeve (2) .

NOTICE

The use of excessive force on the sleeve distorter can cause the distorter adapter to crack the housing. To help avoid damage to the engine, do not use excessive force to remove the wear sleeve.

3. Insert Tooling (C) between Tooling (B) and wear sleeve (2) . Carefully turn Tooling (C) until the edge of the tool causes a crease in wear sleeve (2) .

Repeat this procedure several times around wear sleeve (2) until wear sleeve (2) can be removed by hand.

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i06694196

Crankshaft Rear Seal and Wear Sleeve - Install

SMCS - 1161-012; 7558-012

Installation Procedure For Seals 113-8432 and 113-8433

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
D	6V-4003 ⁽¹⁾	Seal Locator As	1
	2N-5006	Bolt	2
E	8T-3099	Seal Installer	1
F	9S-8858	Nut	1
G	-	Loctite 7649 Primer N	1
H	-	Loctite 620 Retaining Compound	1
J	452-6011	Multipurpose Grease	1
K	484-7863 ⁽²⁾	Tool As	1

⁽¹⁾ For installation of seals 113-8432 and 113-8433

⁽²⁾ For Installation of seals 436-1478 and 436-1479

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Every time that the crankshaft seal is removed from the wear sleeve, a new wear sleeve and crankshaft seal must be installed.

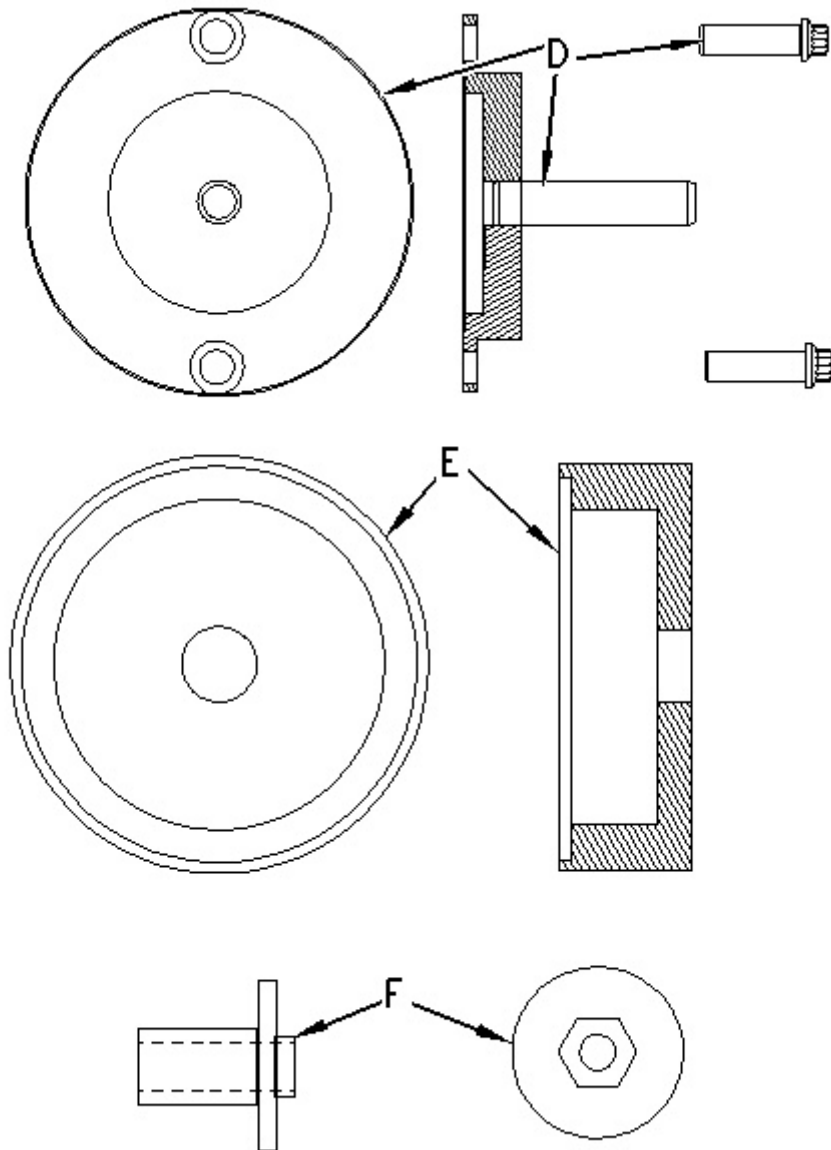


Illustration 1

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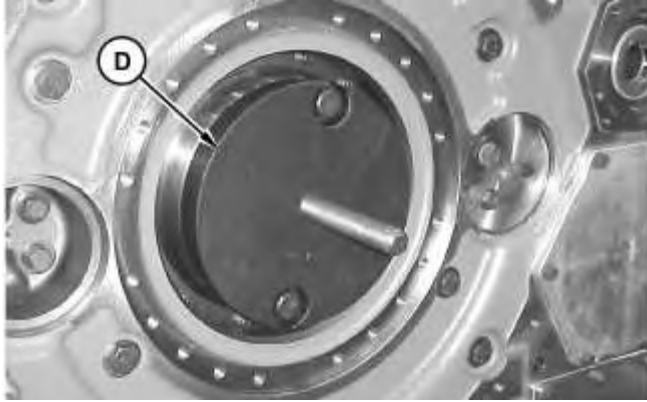


Illustration 2

g01207497

1. Attach Tooling (D) to the crankshaft.
2. Clean the outer diameter of the crankshaft and the inner diameter of the new wear sleeve with Tooling (G).
3. Apply Tooling (H) to the outer diameter of the crankshaft and the inner diameter of the new wear sleeve.

NOTICE

If the crankshaft seal and the wear sleeve come apart during installation, the crankshaft seal and the wear sleeve must be replaced.

Note: The front crankshaft seal and the wear sleeve cannot be interchanged with the rear crankshaft seal and the wear sleeve.

NOTICE

Do not place engine oil on the crankshaft seal for installation. Lubrication of the crankshaft seal can give a false indication of leakage at a later time.

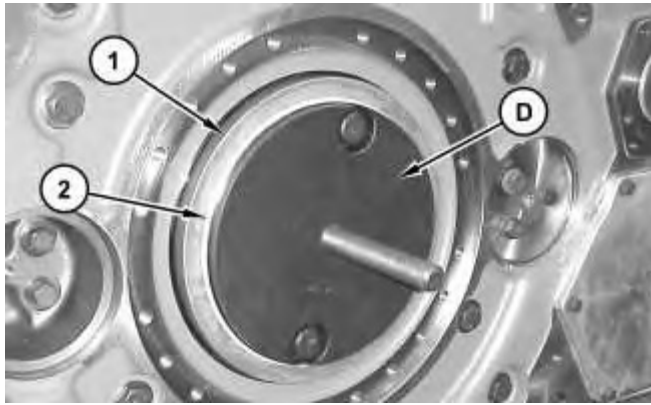


Illustration 3

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4. Place front seal (1) and wear sleeve (2) onto Tooling (D).

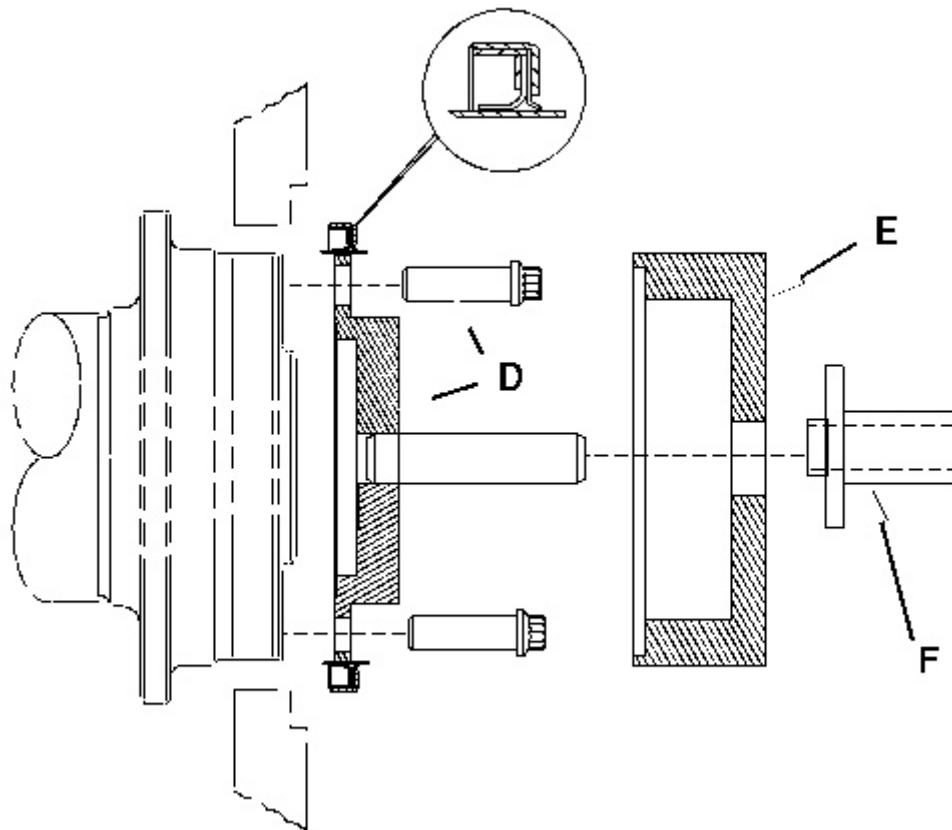


Illustration 4

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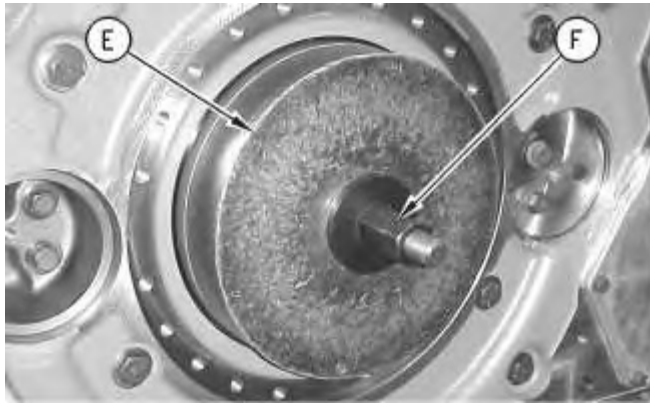


Illustration 5

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5. Place Tooling (E) onto Tooling (D). Apply Tooling (J) onto the face of the washer on Tooling (F). Install Tooling (F) onto Tooling (E). Tighten the nut until Tooling (E) contacts Tooling (D).
6. Remove the Tooling from the crankshaft.

Installation Procedure For Seals 436-1478 and 436-1479

NOTICE

Keep all parts clean from contaminants.

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NOTICE

Do not place engine oil on the crankshaft seal for installation.

Lubrication of the crankshaft seal can give a false indication of leakage at a later time.

Note: Ensure that there are no imperfections on the mating surfaces of the crankshaft, the installation tooling, or on the sealing surface of the crankshaft. Surface imperfections can distort the seal during installation and will cause the seal to malfunction.

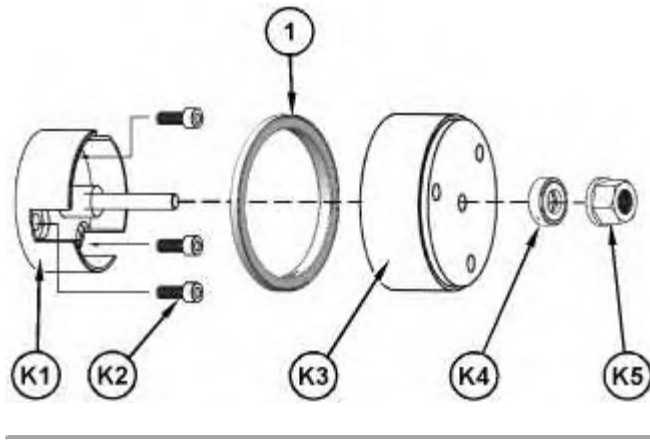


Illustration 6

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1. Using Tooling (K), install rear seal (1) as outlined in the following steps:
 - a. Install pilot (K1) to the crankshaft and install bolts (K2).
 - b. Position rear seal (1) onto pilot (K1).
 - c. Install driver (K3) onto the shaft of pilot (K1). Mark driver (K3) at the 12 O' Clock position. Install bearing (K4) and nut (K5).
 - d. Tighten nut (K5) until the base of driver (K3) contacts the skirt of pilot (K1). Loosen nut (K5) and rotate driver (K3) 180 degree. Retighten nut (K5) until driver (K3) contacts the skirt of pilot (K1).
2. Remove Tooling (K).

End By:

- a. Install the flywheel.
-

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i02517352

Flywheel Housing - Remove

SMCS - 1157-011

Removal Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	8B-7548	Push-Puller Tool Group	1
	8B-7559	Adapter	2
	8H-0684	Ratchet Wrench	1
	8B-7561	Step Plate	3
B	138-7573	Link Bracket	2
C	169-5464	Quick Cure Primer	-

Start By:

- a. Remove the starting motors. Refer to Disassembly and Assembly, "Air Starting Motor - Remove" or Disassembly and Assembly, "Electric Starting Motor - Remove and Install".
- b. If the exhaust elbow is attached to the flywheel housing, remove the exhaust elbow and remove the bracket for the exhaust elbow. Refer to Disassembly and Assembly, "Exhaust Elbow - Remove and Install".
- c. Remove the engine oil pan. Refer to Disassembly and Assembly, "Engine Oil Pan - Remove".

NOTICE

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1. Use the timing pins in order to properly time the engine. Refer to Testing and Adjusting, "Camshaft Timing". Refer to Testing and Adjusting, "Finding the Top Center Position for the No. 1 Piston".
2. Remove the crankshaft rear seal and the wear sleeve. Refer to Disassembly and Assembly, "Crankshaft Rear Seal and Wear Sleeve - Remove".
3. Remove the camshaft covers and gaskets.
4. Remove the bolts and plates from the camshafts.

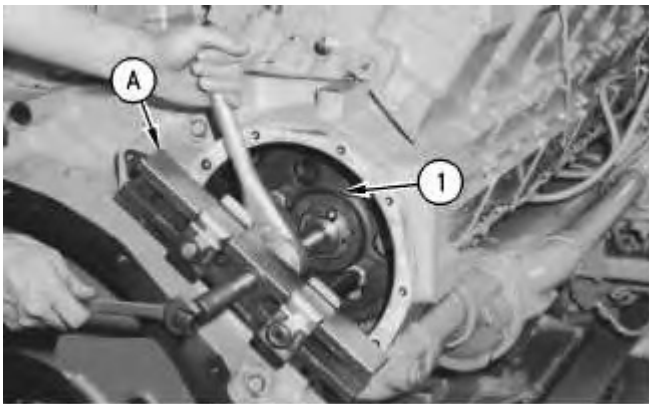


Illustration 1

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5. Use Tooling (A) in order to remove camshaft drive gears (1).

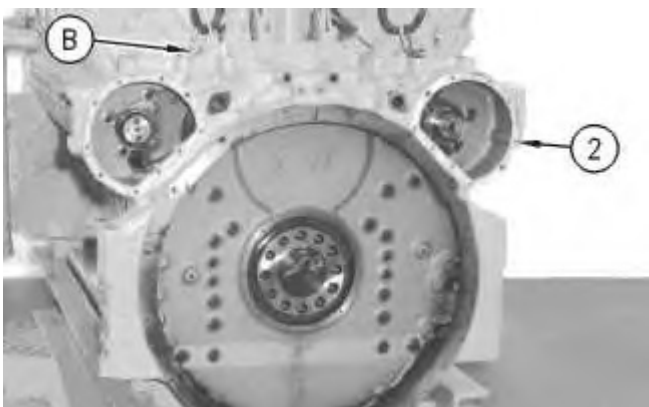


Illustration 2

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6. Install Tooling (B) into flywheel housing (2). Attach a suitable lifting device to Tooling (B). The weight of flywheel housing (2) is approximately 251 kg (553 lb).
7. Remove the bolts and remove flywheel housing (2) and the gasket.

8. After removing flywheel housing (2), clean the mating surface of the cylinder block and the mating surface of the flywheel housing with Tooling (C). If necessary, use a gasket scraper and a solvent in order to remove any residual gasket material. Both mating surfaces must be clean, dry, and free of any oil before installation.
-

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i06304711

Flywheel Housing - Install

SMCS - 1157-012

Installation Procedure

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
B	138-7573	Link Bracket	2
D	-	Guide Bolts 5/8 - 11 NC by 8 inch	2
E	- ⁽¹⁾	Loctite 5127	-

⁽¹⁾ EAME

NOTICE

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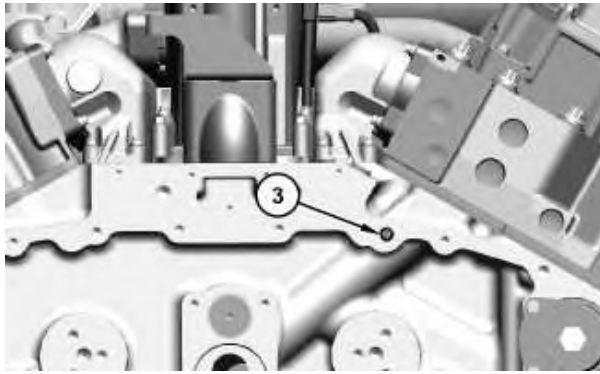


Illustration 1

g03896638

Note: Refer to Engine News 27 March 2006, "Sealing and Installing the Flywheel Housing" for more information.

1. Install O-ring seal (3) on the dowel.

Note: If the dowel needs to be replaced, the installed height is 6.0 ± 0.5 mm (0.24 ± 0.02 inch).

2. Ensure that the mating surface of the flywheel housing and the engine block are clean. Both mating surfaces must be clean, dry, and free of any oil before Tooling (E) is applied.

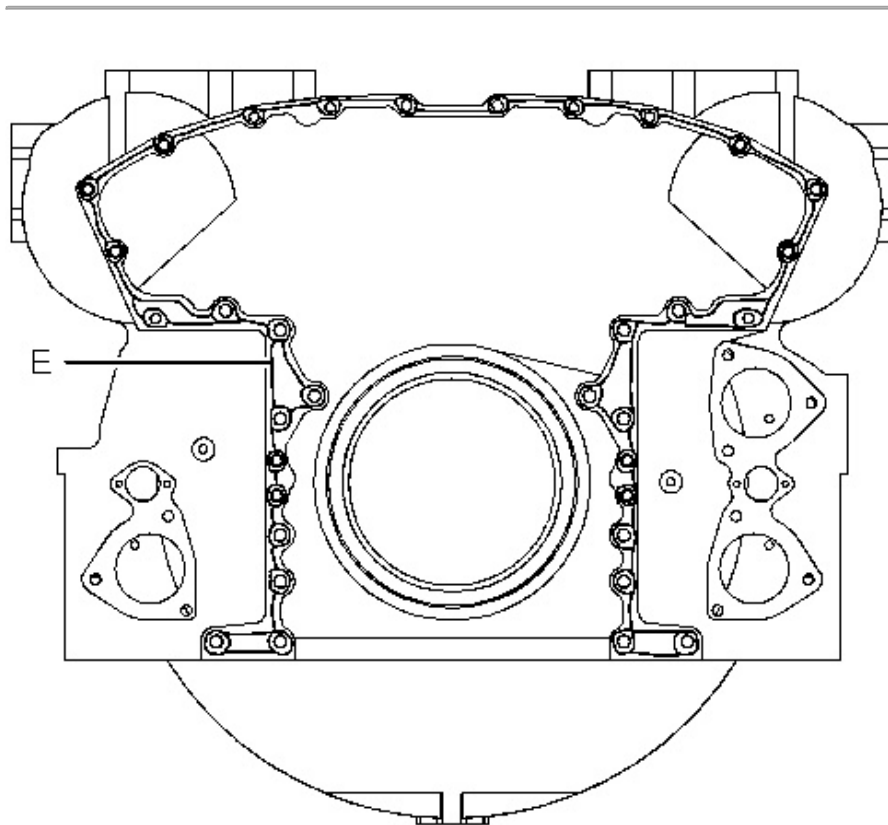


Illustration 2

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3. Apply a 6.0 mm (0.25 inch) bead of Tooling (E) to the mating surface of the flywheel housing. Refer to Illustration 2.

4. Install Tooling (D) into the cylinder block.

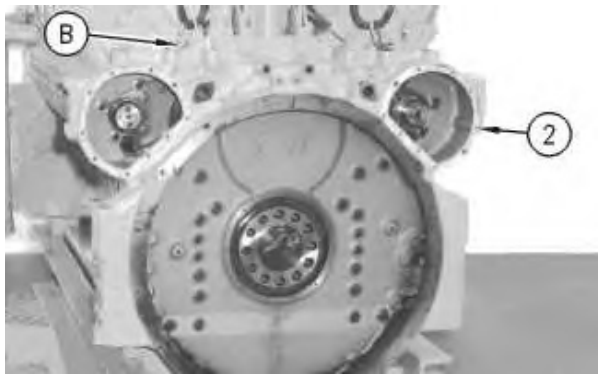


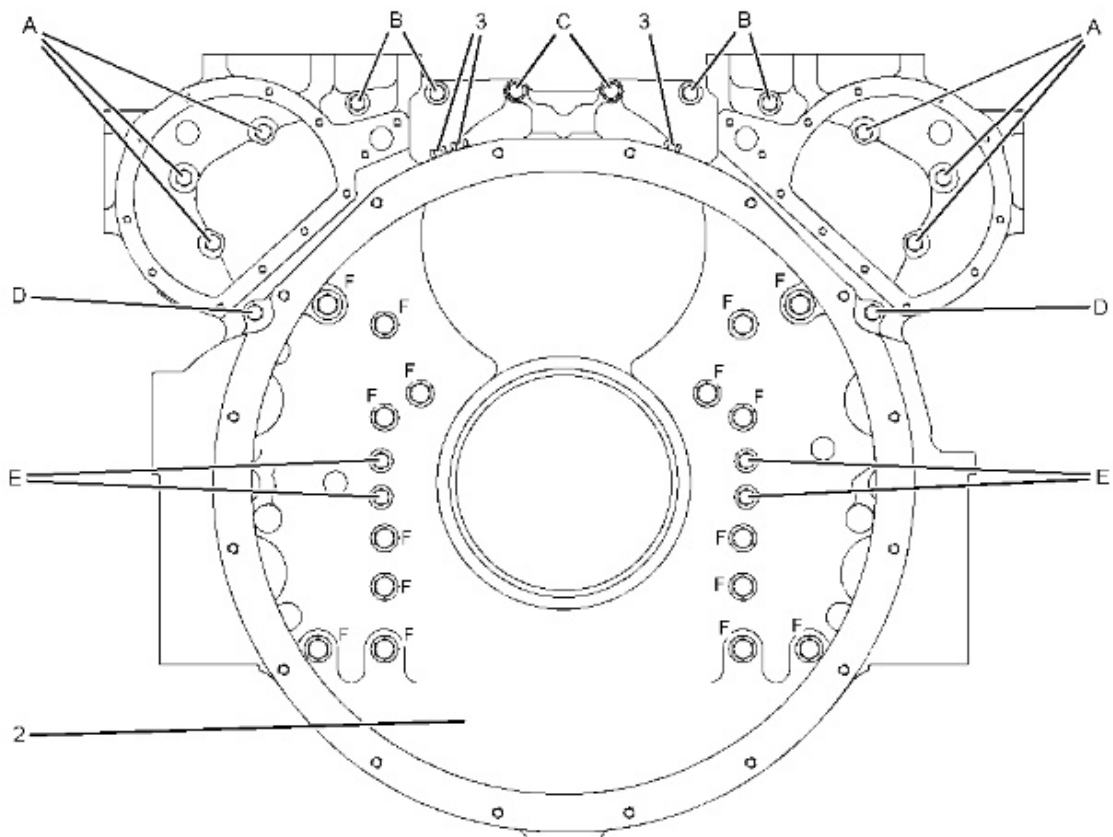
Illustration 3

g00912883

5. Install Tooling (B) onto flywheel housing (2) . Attach a suitable lifting device to Tooling (B) . The weight of flywheel housing (2) is approximately 251 kg (553 lb).
6. Lift flywheel housing (2) into position onto Tooling (D) .

Note: For the correct positions of the bolts, see Illustration 4 or Illustration 5.

7. Install the bolts and the hard washers that secure flywheel housing (2) to the cylinder block. Remove Tooling (D) and install the remaining bolts and the remaining hard washers.



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