



Service Repair Manual

Models

305.5E2 Mini Hydraulic
Excavator

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Product: MINI HYD EXCAVATOR

Model: 305.5E2 MINI HYD EXCAVATOR CR5

Configuration: 305.5E2 Mini Hydraulic Excavator CR500001-UP (MACHINE) POWERED BY C2.4 Engine

Disassembly and Assembly

C2.4 Tier 4 Final Engines for Caterpillar Built Machines

Media Number -UENR7319-02

Publication Date -01/07/2018

Date Updated -01/08/2018

i06546123

Flywheel - Remove and Install

SMCS - 1156-010

Removal Procedure

Table 1

Required Tooling			
Tool	Part Number	Part Description	Qty
A	421-5660	Lifting Eye Assembly	1
B	—	Guide Stud 12 mm - 1.25 - by 100 mm	2

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

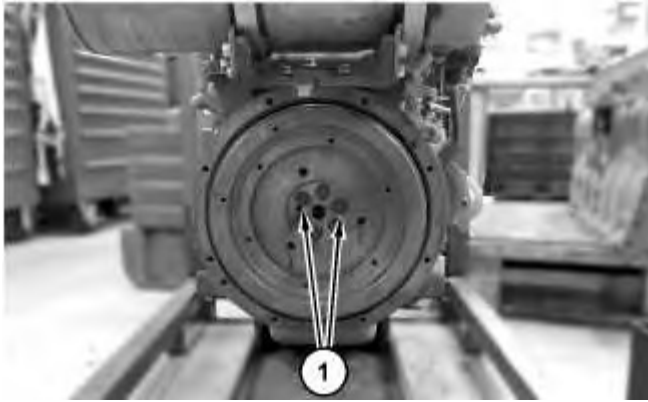


Illustration 1

g06010289

1. Insert the flywheel stopper tool.
2. Remove bolts (1).

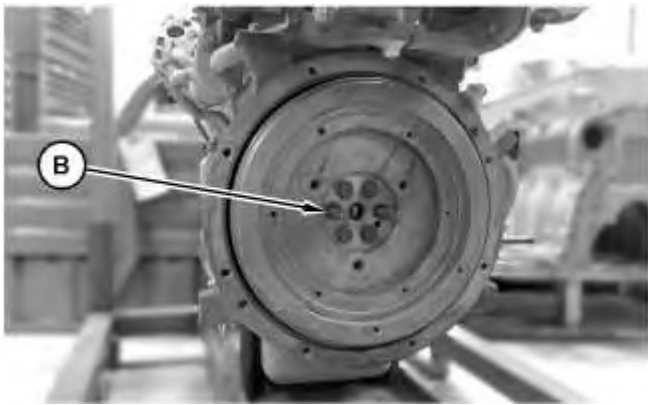


Illustration 2

g06010294

3. Insert Tooling (B).



Illustration 3

g06010296

4. Use Tooling (A) and a suitable lifting device to remove flywheel (2). The weight of flywheel (2) is approximately 25 kg (55 lb).

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5. Remove remaining bolts (1) and flywheel (2).

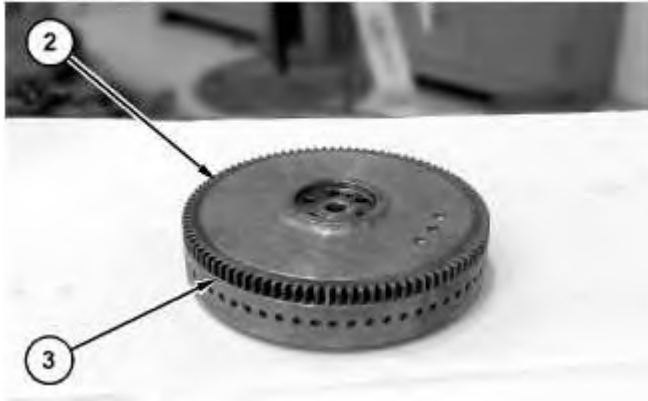


Illustration 4

g06010476

6. Inspect flywheel (2) and ring gear (3) for wear and damage. Replace any worn components or damaged components.
7. If necessary, remove flywheel gear (3), follow Step 7.a through Step 7.b
 - a. Place flywheel (2) on a suitable support.
 - b. Use a suitable hammer and a punch to remove ring gear (3) from flywheel (2). If necessary, a torch may be needed to heat ring gear (3).

Note: Identify the orientation of the teeth on the flywheel ring gear (3).

Installation Procedure

1. Install flywheel (2) in the reverse order of removal.
 - a. Apply clean engine oil to the threads of bolts (1).
 - b. Tighten bolts (1) to a torque of 98 N·m to 108 N·m (72 lb ft to 80 lb ft).

Note: Do not use a pneumatic device, serious damage will occur.

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C2.4 Tier 4 Final Engines for Caterpillar Built Machines

Media Number -UENR7319-02

Publication Date -01/07/2018

Date Updated -01/08/2018

i06535597

Crankshaft Rear Seal Carrier - Remove and Install

SMCS - 1161-010-C3

Removal Procedure

Table 1

Required Tooling			
Tool	Part Number	Part Description	Qty
A	486-2270	Crankshaft Oil Seal Installer	1

Start By:

- a. Remove flywheel.



Illustration 1

g06012254

- 1. Remove bolts (1), bolts (3), cover (2), and the gaskets.



Illustration 2

g06012267

2. Remove lip seal (4).

Installation Procedure

1. Install the crankshaft rear seal carrier in the reverse order of removal.
 - a. Apply clean engine oil to lip seal (4).
 - b. Use Tooling (A) to install lip seal (4).
 - c. Tighten bolts (3) and bolts (1) to a torque of 24 N·m to 27 N·m (212 lb in to 239 lb in).

Note: Tighten the bolts with an equal force on the diagonal line.

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i06516070

Flywheel Housing - Remove and Install

SMCS - 1157-010

Removal Procedure

Start By:

- a. Remove electric starting motor.
- b. Remove diesel particulate filter.
- c. Remove flywheel.
- d. Remove crankshaft position sensor.

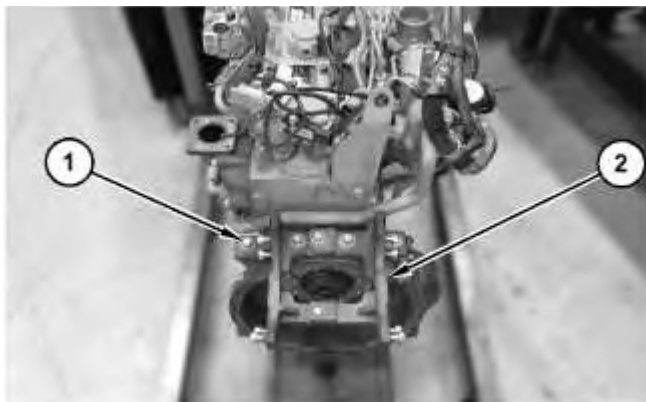


Illustration 1

g06005963

1. Remove bolts (1) and bracket assembly (2).



Illustration 2

g06005995

2. Remove bolts (3) and flywheel housing (4).

Installation Procedure

1. Install flywheel housing (4) in the reverse order of removal.
 - a. Tighten bolts (1) to a torque of 49 N·m to 55 N·m (36 lb ft to 41 lb ft).

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i06524126

Crankshaft Pulley - Remove and Install

SMCS - 1205-010

Removal Procedure

Table 1

Required Tooling			
Tool	Part Number	Part Description	Qty
A	488-1131	Socket	1
B	1U-6400	Three Jaw Puller	1
C	—	Loctite ViperLube High Performance Synthetic Grease	—

Start By:

- a. Remove the v-belt.



Illustration 1

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1. Use Tooling (A) to remove nut (1)

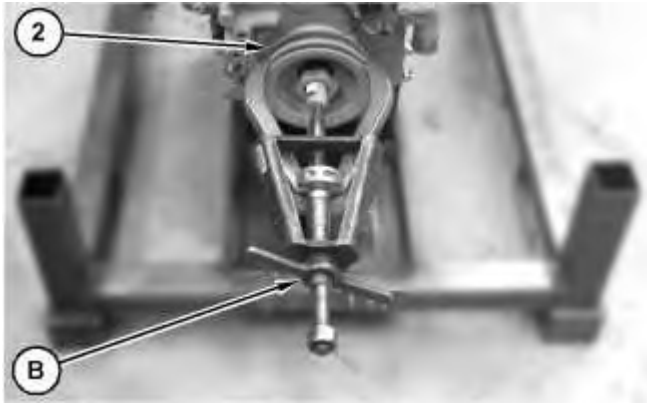


Illustration 2

g06009278

2. Use Tooling (B) to remove crankshaft pulley (2).

Installation Procedure

1. Install crankshaft pulley (2) in the reverse order of removal.
 - a. Apply Tooling (C) to the splines of the crankshaft.
 - b. Tighten nut (1) to a torque of 138 N·m to 156 N·m (102 lb ft to 115 lb ft).

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i06540618

Crankshaft Front Seal - Remove and Install

SMCS - 1160-010

Removal Procedure

Start By:

- a. Remove crankshaft pulley.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Dispose of all fluids according to local regulations and mandates.

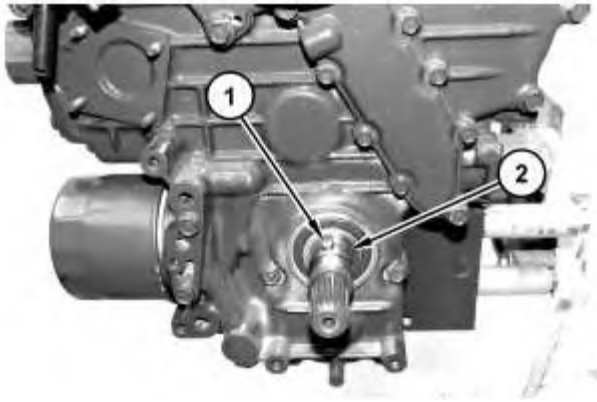


Illustration 1

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1. Remove key (1) and sleeve (2) from the crankshaft.

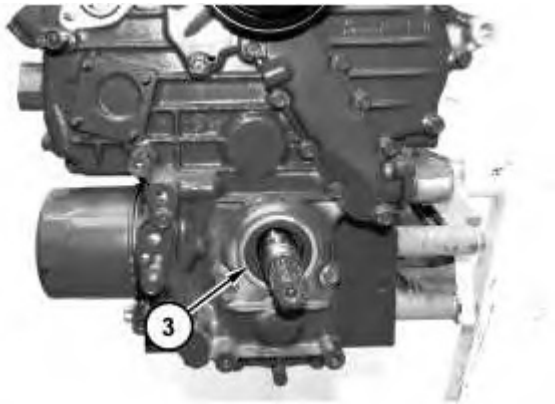


Illustration 2

g02717557

2. Remove crankshaft front seal (3).

Installation Procedure

1. Install crankshaft front seal (3) in the reverse order of removal.

Note: The crankshaft front seal should be installed dry. Lubricate the inner rubber portion of the crankshaft front seal.

- a. Inspect the nose of the crankshaft for damage. Ensure that the crankshaft is clean and dry.

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i06540930

Idler Gear - Remove and Install

SMCS - 1206

Removal Procedure

Table 1

Required Tooling			
Tool	Part Number	Part Description	Qty
A	387-1314	Idler Gear Tool	1

Start By:

- a. Remove front housing.

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Dispose of all fluids according to local regulations and mandates.



Illustration 1

g06014275

1. Ensure that Timing Marks (X) on the idler gear and the crankshaft gear are aligned.



Illustration 2

g06014283

2. Ensure that Timing Marks (Y) on the idler gear and the camshaft gear are aligned.



Illustration 3

g06014290

3. Ensure that Timing Marks (Z) on the idler gear and the fuel injection pump gear are aligned.

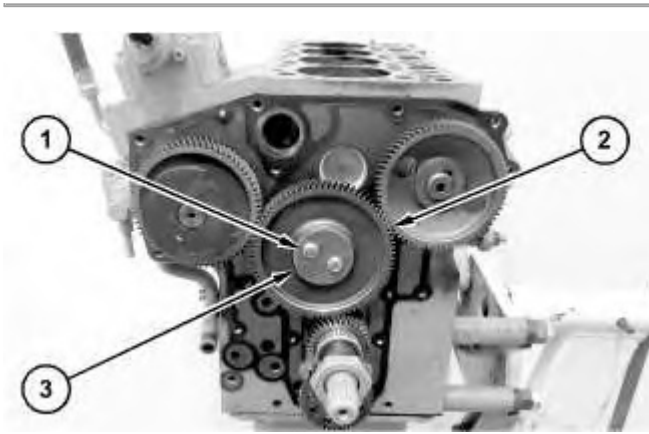


Illustration 4

g06014314

4. Remove bolts (1), gear control collar (3), and idler gear (2).



Illustration 5

g06014318

5. Use Tooling (A) and a suitable press to remove idler gear bearing (4).



Illustration 6

g06014504

Note: Make a temporary mark on the cylinder block in order to show the position of the oil hole.

6. Remove bolts (5) and idler shaft (6).

Installation Procedure

1. Install idler gear (2) in the reverse order of removal.
 - a. Ensure that the gears, cylinder block surface, and idler gear (2) are clean and free from wear or damage. If necessary, replace any components that are worn or damaged
 - b. Lubricate idler shaft (6) with clean engine oil.
 - c. Lubricate idler gear bearing surface (4) with clean engine oil.
 - d. Apply clean engine oil to bolts (5).

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i06524408

Housing (Front) - Remove and Install

SMCS - 1151-010

Removal Procedure

Table 1

Required Tooling			
Tool	Part Number	Part Description	Qty
A	—	Loctite Hi-Temp Flange Sealant	—

Start By:

- a. Remove crankshaft pulley.
- b. Remove engine oil cooler.
- c. Remove camshaft position sensor.



Illustration 1

g06009327

1. Remove clamp (1). Disconnect hose assembly (2).

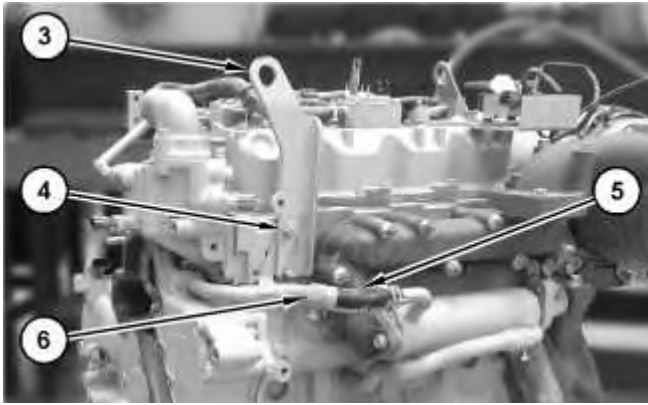


Illustration 2

g06009342

2. Remove nut (4) and lifting plate (3).
3. Remove clamp (6) and disconnect hose assembly (5).

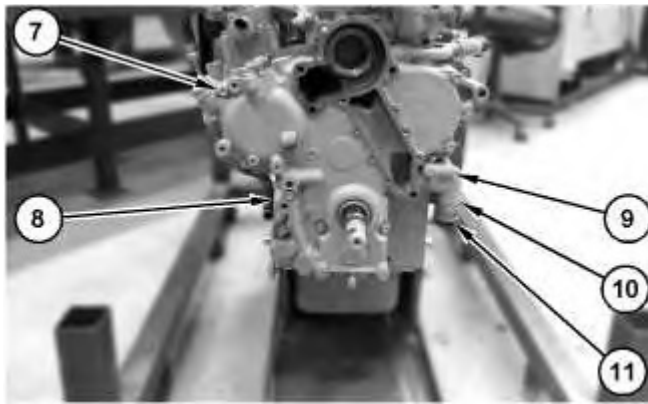


Illustration 3

g06009549

4. Disconnect hose assembly (11) (not shown). Remove bolts (9) and elbow (10).
5. Remove bolts (7), front housing (8), and the gasket.

Installation Procedure

1. Install front housing (8) in the reverse order of removal.
 - a. Apply Tooling (A) to the flange of front housing (8).

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i06501570

Valve Mechanism Cover - Remove and Install

SMCS - 1107-010

Removal Procedure

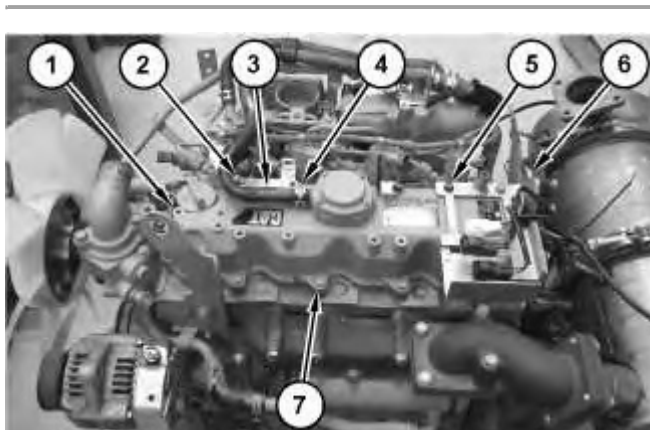


Illustration 1

g06000444

1. Remove bolts (5) and bracket (6).
2. Remove bolt (2), clamp (4), and hose assembly (3).
3. Remove bolts (7), valve mechanism cover (1), and the gasket.

Installation Procedure

1. Install valve mechanism cover (1) in the reverse order of removal.
 - a. Tighten bolts (7) to a torque of 7 N·m to 11 N·m (62 lb in to 97 lb in).



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i06546146

Rocker Shaft and Push Rod - Remove and Install

SMCS - 1102-010; 1208-010

Removal Procedure

Start By:

- a. Remove valve mechanism cover.

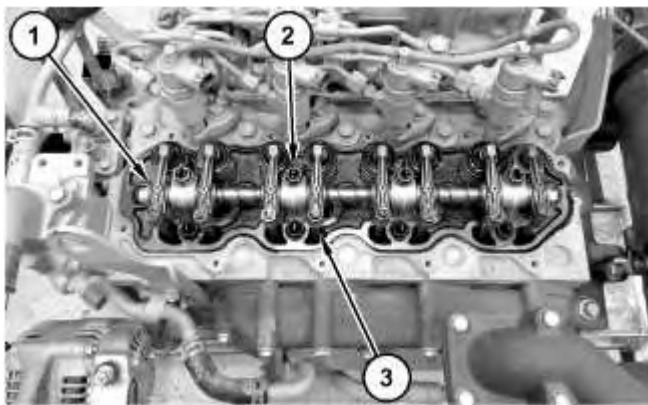


Illustration 1

g06010610

1. Remove bolts (2) and rocker shaft assembly (1).
2. Place an identification mark on pushrods (3) to show the location. Remove pushrods (3).

Note: Identification mark will ensure that the pushrods can be installed in the original positions. Do not interchange the positions of used pushrods.

Installation Procedure

1. Install pushrods (3) and rocker shaft assembly (1) in the reverse order of removal.

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