

Product: TRACK-TYPE TRACTOR

Model: D5H TRACK-TYPE TRACTOR 4KD

Configuration: D5H & D5H LGP TRACTORS / POWERSHIFT / 4KD00001-UP (MACHINE) POWERED BY 3304 ENGINE

Disassembly and Assembly

3304 MACHINE ENGINE FOR D4H SERIES III AND D5H SERIES II TRA

Media Number -SEN3253-01

Publication Date -01/09/1992

Date Updated -20/07/2010

SEN32530040

Timing Gears And Plate

SMCS - 1162-012; 1162-011; 1206

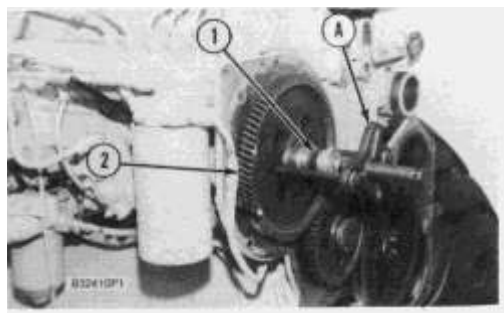
Remove Timing Gears And Plate

Tools Needed		A	B	C
8S2264	Puller Group	1		
8B7560	Step Plate	1		
1B3680	Bolt, (3/8" - 24 NF x 3 3/4 long)	2		
5M2894	Flat Washer (3/8 in)	2		
1P510	Driver Group		1	
4B4281	Flat Washer			4

Start By:

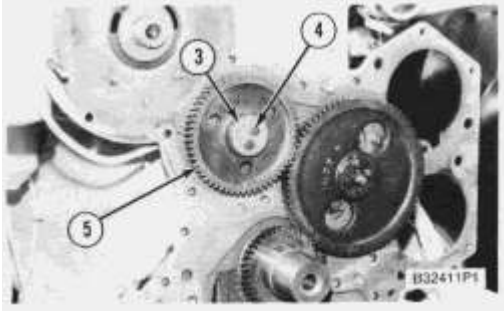
a. remove timing gear cover

1. Put the engine in correct timing. See the topic, Remove Fuel Injection Pump Housing and Governor for this procedure.



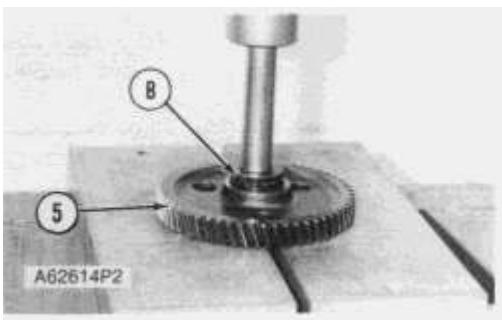
Typical Example

2. Remove bolt (1) and the washer that holds gear (2) in place.
3. Install tooling (C) and bolt (1) to hold the sleeve on the end of the fuel injection pump camshaft.
4. Install tooling (A) on gear (2) and tighten the center bolt of tooling (A) until the gear is loosened.
5. Remove tooling (A), bolt (1), tooling (C) and the gear.

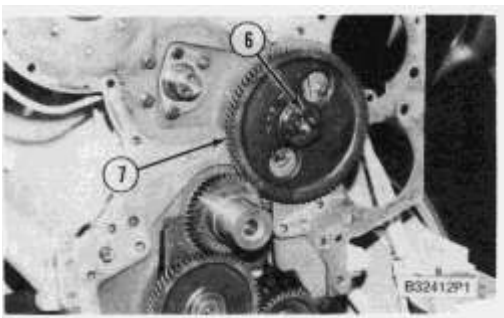


Typical Example

6. Remove bolts (4), plate (3) and idler gear (5).

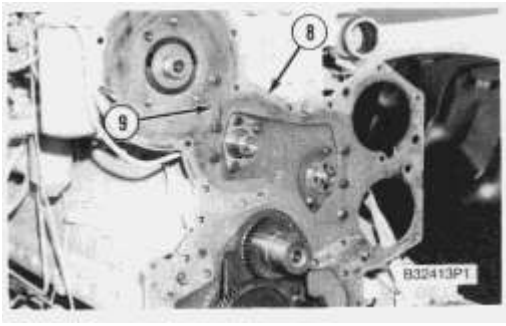


7. Inspect the bearing in idler gear (5) for wear or damage. If a replacement of the bearing is needed, use tool group (B) and a press to remove it from the gear as shown.



Typical Example

8. Remove bolts (6) and camshaft gear (7) from the camshaft.
9. Remove the three nuts on the back side of the plate that hold the fuel pump to the plate.

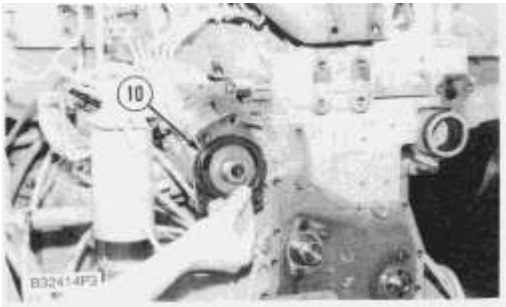


Typical Example

10. Bend locks (9) away from the bolts.
11. Remove the bolts, locks (9) and plate (8) from the cylinder block.
12. Remove the old gasket material from the cylinder block and plate (8).

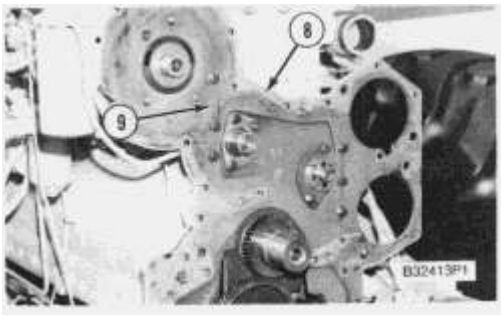
Install Timing Gears And Plate

Tools Needed		B	D	E
1P510	Driver Group	1		
5P8675	Extension Handle		1	
5P3520	Spanner Wrench		1	
9S7352	Torque Wrench			1



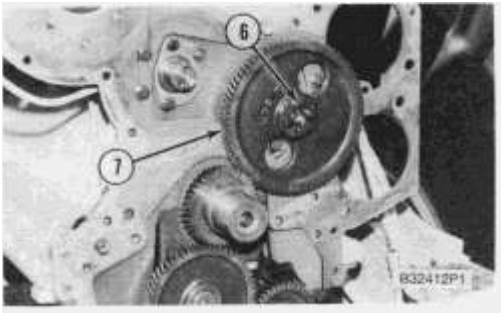
Typical Example

1. Make sure O-ring seal (10) is in place on the fuel pump housing.
2. Clean the old gasket from the contact surfaces of the timing gear plate and cylinder block. Install a new gasket on the cylinder block. Cut the gasket even with the bottom face of the cylinder block. Put **5H2471 Gasket Cement** on the bottom of the gasket where the gasket makes contact with the gasket for the oil pan.



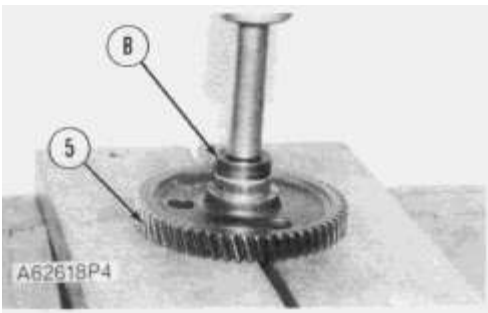
Typical Example

3. Put timing gear plate (8) in position on the cylinder block. Install the three nuts that hold the fuel pump on the back side of the timing gear plate. Install locks (9) and the six bolts that hold the plate in place.

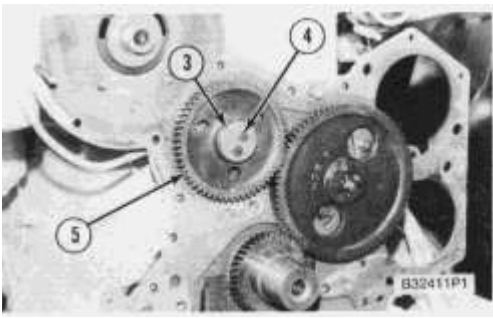


Typical Example

4. Install camshaft gear (7) with the "C" mark on the camshaft gear in alignment with the "C" mark on the crankshaft gear. Install the washers and bolts (6) that hold the crankshaft gear in place.

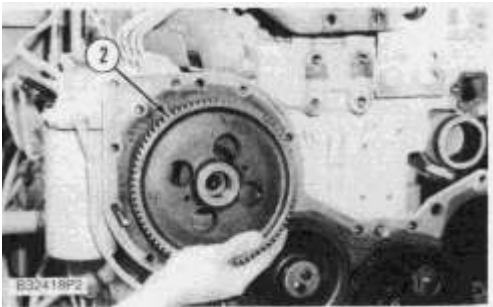


5. Install the bearing in idler gear (5) with tool group (B) and a press. The end of the bearing must be **1.52 mm (.060 in)** below the face of the gear hub.



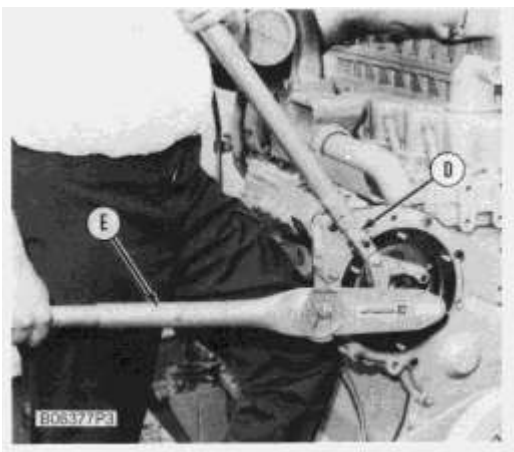
Typical Example

6. Put idler gear (5) in position, and install plate (3) and bolts (4) that hold it.



Typical Example

7. Put fuel injection pump drive gear (2) in position on the fuel injection pump, and install the bolt and washer that hold it. Install the washer with the larger outside diameter toward the bolt head. Do not tighten the bolt at this time.



8. Install tooling (D) in the holes of the fuel injection pump drive gear as shown. Put a torque of approximately **68 N·m (50 lb ft)** on the pump drive gear in a clockwise direction (as seen from the front of the engine). With the clockwise torque on the pump drive, use tooling (E) to tighten the bolt to a torque of **270 ± 25 N·m (200 ± 18 lb ft)**.

9. Check timing of the fuel injection pump and engine, see the topic, Timing Check in the Systems Operation, Testing And Adjusting Manual.

End By:

a. install timing gear cover

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Media Number -SEN3253-01

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SEN32530041

Flywheel

SMCS - 1156-010

Remove And Install Flywheel

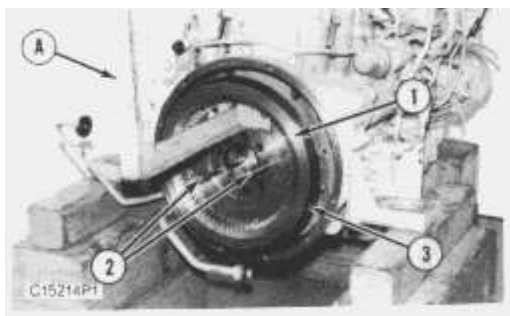
Tools Needed		A	B
FT120	Lifting Bracket	1	
8S2328	Dial Indicator Test Group		1

Start By:

- a. remove engine
- b. remove torque converter (Power Shift) *
- c. remove pump drive (Direct Drive) **

* See the topic, Remove Torque Converter, in the Power Train Disassembly And Assembly module, Form No. SENR3257.

** See the topic, Remove Pump Drive, in the Power Train Disassembly And Assembly module, Form No. SENR3257.



1. Install tooling (A) on the flywheel as shown, and fasten a hoist to it.
2. Remove two of the bolts, opposite each other, that hold the flywheel to the crankshaft. Install two 5/8 " - 18 NF guide bolts (2).
3. Remove the remainder of the bolts that hold the flywheel. Remove flywheel (1). The weight of the flywheel is **26 Kg (57 lb)**.

NOTE: If necessary, remove the adapter from the flywheel on the direct drive machine.

4. If necessary, remove ring gear (3) from the flywheel with a punch and hammer.

NOTE: The following steps are for installation of the flywheel.

NOTICE

The ring gear must be installed with the part number facing the backside of the flywheel. This will put the chamfered side of the gear teeth toward the starter pinion when the flywheel is installed, so the starter will engage correctly.

5. Heat ring gear (3) to a maximum temperature of **320° C (608° F)**. Install the ring gear on the flywheel.

NOTE: On the direct drive machine, install the adapter in the flywheel if it was necessary to remove it.

6. Install two 5/8 " - 18 NF guide bolts (2) opposite each other in the end of the crankshaft.
7. Put the flywheel in position on the guide bolts. Align the location mark on the flywheel with the mark on the crankshaft.
8. Install all but two of the bolts that hold the flywheel to the crankshaft. Remove tooling (A) and the guide bolts. Install the remainder of the bolts in the flywheel. Tighten the bolts to a torque of **200 ± 25 N· (150 ± 20 lb ft)**.
9. Use tooling (B) to measure the face runout and bore runout of the flywheel. The face runout and bore runout must not be more than **0.15 mm (.006 in)** total indicator reading. See Specifications For 3304 Direct Injection Vehicular Engines, Form No. SENR2252, for the correct procedure to measure the face runout and bore runout of the flywheel.

End By:

- a. install torque converter (Power Shift) *
 - b. install pump drive (Direct Drive) **
 - c. install engine
-

*See the topic, Install Torque Converter, in the Power Train Disassembly And Assembly module, Form No. SENR3257.

**See the topic, Install Pump Drive, in the Power Train Disassembly And Assembly module, Form No. SENR3257.

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SEN32530042

Crankshaft Rear Seal And Wear Sleeve

SMCS - 1161-011; 1161-012

Remove Crankshaft Rear Seal And Wear Sleeve

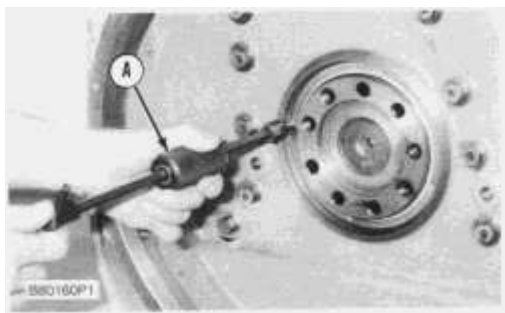
Tools Needed		A	B	C
1P3075	Lip Type Seal Puller	1		
5P7312	Distorter		1	
5P7313	Ring			1

Start By:

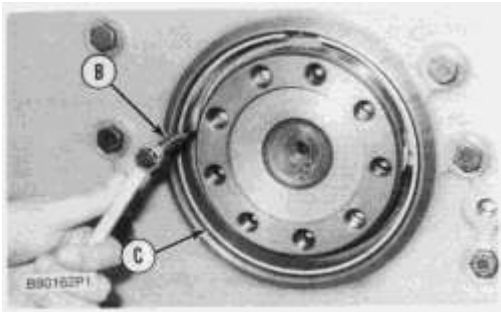
a. remove flywheel

NOTICE

When a replacement of the rear seal is made, a replacement of the wear sleeve is to be made also.



1. Remove the crankshaft rear seal with tool (A).



2. Install tool (C) in the rear seal bore.

3. Install tool (B) between tool (C) and the wear sleeve. Turn tool (B) until the edge of the tool makes a flat place (crease) in the wear sleeve. Do this in two or more places until the wear sleeve is loose.

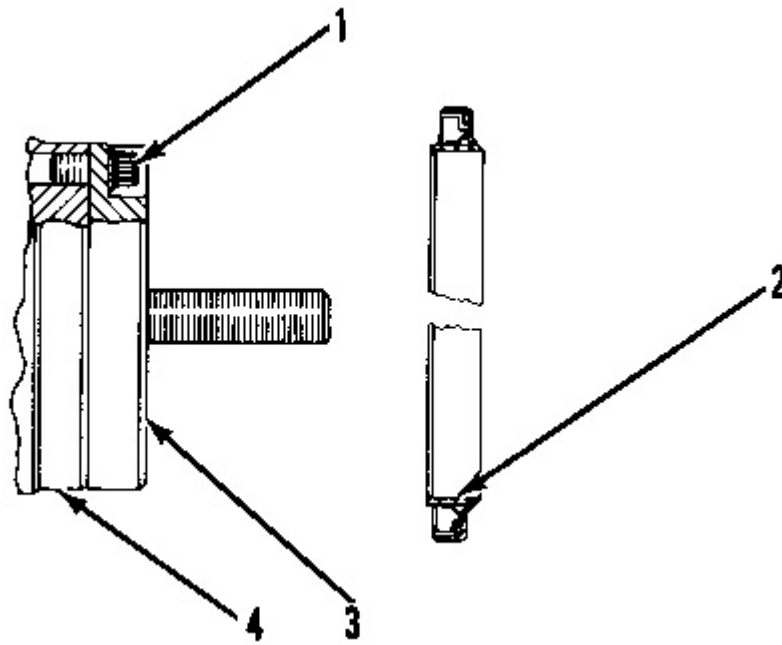
4. Remove tool (C) and the wear sleeve by hand.

Install Crankshaft Rear Seal And Wear Sleeve

Tools Needed		A
9S8871	Locator	1
6V7876	Installer	1
9S8858	Nut	1
9S8890	Bolt	3

NOTICE

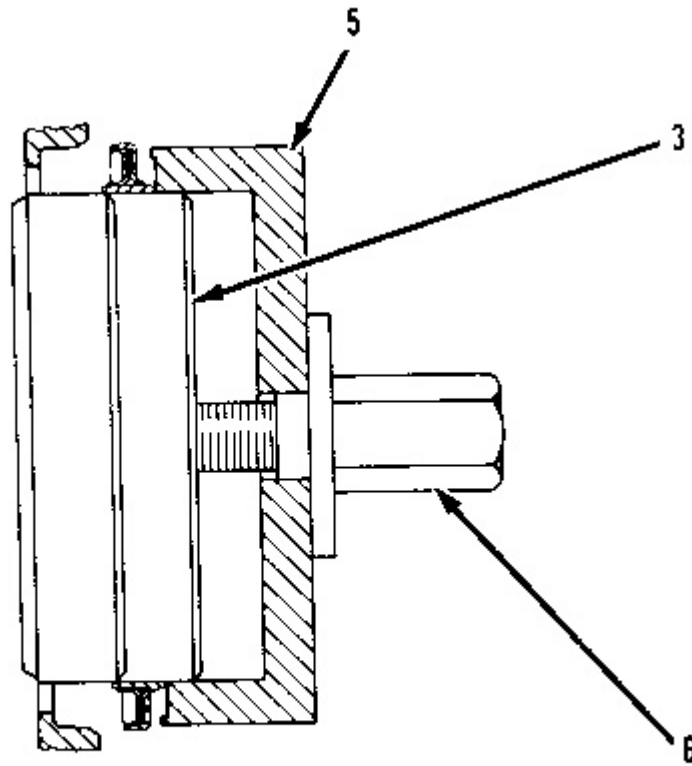
Once there is a separation of a seal and wear sleeve they cannot be used again. Used seals cannot be used again.



C16930P1

NOTE: Do not use any type of lubrication during the installation of the seal group.

1. Put locator (3) from tooling (A) in position on the crankshaft, and install three bolts (1) from tooling (A) that hold the locator in place.
2. Use **6V1541 Quick Cure Primer** to clean the outside of crankshaft flange (4) and the inside diameter of wear sleeve (2).
3. Put **9S3265 Retaining Compound** on the outside diameter of crankshaft flange (4) and the inside diameter of wear sleeve (2).



C16931P1

4. Put the seal group (wear sleeve and seal) on locator (3). Put installer (5) from tooling (A) on locator (3) and install nut (6) from tooling (A). Put lubricant on the face of the washer on nut (6).

5. Tighten nut (6) until installer (5) comes in contact with locator (3).

6. Remove tooling (A), and check the seal group for correct installation.

End By:

a. install flywheel

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SEN32530043

Flywheel Housing

SMCS - 1157-010

Remove And Install Flywheel Housing

Tools Needed		A
6V2156	Link Bracket	2

Start By:

a. remove crankshaft rear seal and wear sleeve

b. remove electric starting motor

1. Remove the bolts that hold the oil pan plate to the flywheel housing. Loosen the bolts that hold the oil pan plate to the cylinder block.

2. Install spacers between the oil pan plate and the cylinder block to hold the oil pan plate away from the flywheel housing.



3. Remove the bolts and two engine supports (4) from the flywheel housing.

4. Install tooling (A) on the flywheel housing as shown, and fasten a hoist to it.

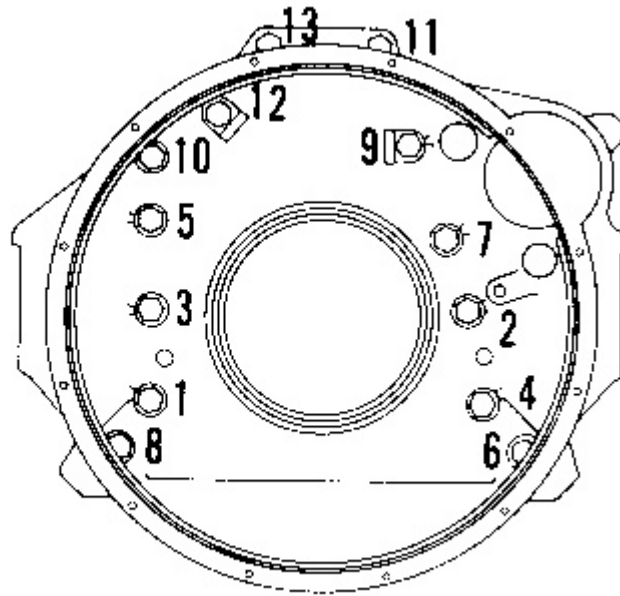
5. Remove all bolts (1) and flywheel housing (3) from the engine. The weight of the flywheel housing is **37 Kg (82 lb)**.

NOTE: The following steps are for installation of the flywheel housing.

6. Clean the old gasket from the surfaces of the cylinder block and flywheel housing that make contact with each other. Install a new gasket on the cylinder block.

7. Install two 1/2 " - 13 NC guide bolts (2) in the cylinder block.

8. Use tooling (A) and a hoist to position flywheel housing (3) on the cylinder block.



B08984P1

9. Install all bolts (1) that hold the flywheel housing, and tighten them in the sequence shown to a torque of **100 ± 14 N·m (75 ± 10 lb ft)**.

10. Cut the bottom of the flywheel housing gasket off even with the cylinder block and flywheel housing. Put **5H2471 Gasket Cement** on the bottom of the gasket where it makes contact with the oil pan gasket.

11. Remove the spacers from between the oil pan plate and the cylinder block. Tighten the bolts that hold the oil pan plate to the cylinder block. Install the bolts that hold the oil pan plate to the flywheel housing.

12. Install two engine supports (4), and the twelve bolts that hold them. Tighten the bolts to a torque of **135 ± 15 N·m (100 ± 11 lb ft)**.

End By:

a. install electric starting motor

b. install crankshaft rear seal and wear sleeve

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