



Service Repair Manual

Models

963 TRACK LOADER

Product: TRACK LOADER

Model: 963 TRACK LOADER 29S

Configuration: 963 TRACK TYPE LOADER 29S00001-UP (MACHINE) POWERED BY 3304 ENGINE

Disassembly and Assembly 963 TRACK-TYPE LOADER

Media Number -SEN2284-00

Publication Date -01/07/1981

Date Updated -11/10/2001

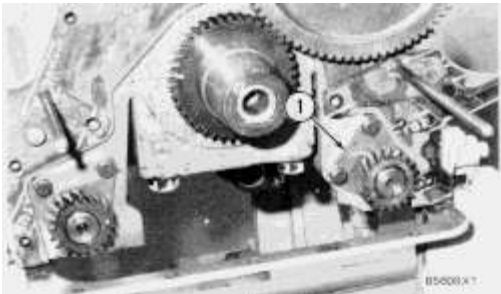
Balancer Shafts

SMCS - 1220-11; 1220-12

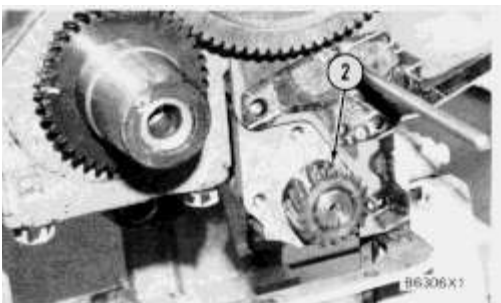
Remove Balancer Shafts

start by:

- a) remove timing gear cover
- b) remove oil pump



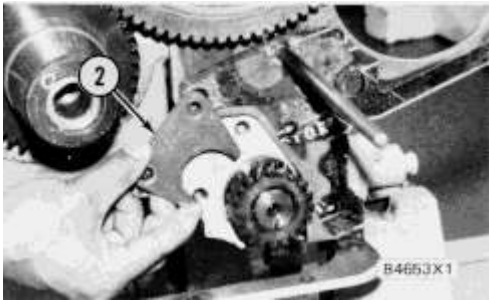
1. Remove bolts, lock and washer (1) that hold the balancer shafts in the cylinder block.



2. Remove balancer shaft (2) from the cylinder block.

Install Balancer Shafts

- b. Put the engine on top center compression stroke. See FINDING TOP CENTER COMPRESSION POSITION FOR NO. 1 PISTON in TESTING AND ADJUSTING.



2. Put clean engine oil on the balancer shaft. Put balancer shaft (1) in position in the cylinder block. Install washer (2), locks and bolts.

3. Turn both balancer shafts until the flat part on each shaft is away from the oil pan plate. Install two 3/8"-16 NC bolts 1 1/2" long through the oil pan plate and into the holes in the balancer shafts. This will make the shafts so they will not turn. Do not tighten the bolts against the bottom of the holes in the shafts.

4. Install oil pump. See INSTALL OIL PUMP.

5. Remove the two 3/8"-16 NC bolts from the balancer shafts. Check to see that the balancer shaft timing is correct. The balancer shaft timing is correct when the holes in the balancer shafts are in alignment with the holes in the oil pan plate, and No. 1 piston is at top center compression position.

end by:

a) install timing gear cover

b) install oil pan

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Balancer Shaft Bearings

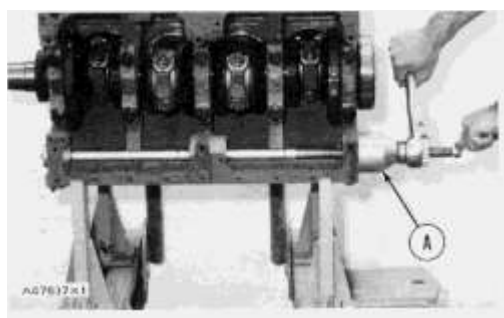
SMCS - 1220-28

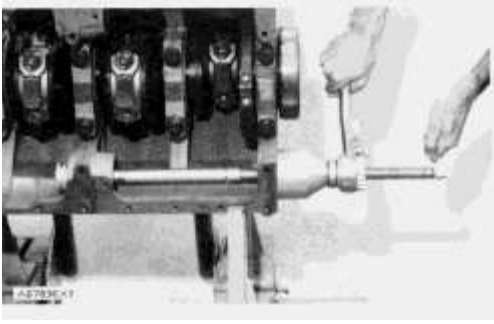
Remove Balancer Shaft Bearings

	Tools Needed	A
8S2241	Camshaft Bearing Tool Group	1
8H684	Ratchet Box Wrench	1

start by:

- remove hydraulic pump gear train
- remove oil pan
- remove oil pump
- remove balancer shafts

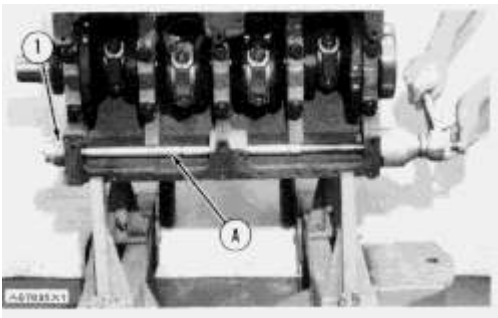




1. Remove the front bearing for the balancer shaft with tooling (A).
2. Remove the center bearing for the balancer shaft with tooling (A).
3. Remove the rear bearing for the balancer shaft with tooling (A).
4. Do Steps 1, 2 and 3 again for the other balancer shaft bearings.

Install Balancer Shaft Bearings

Tools Needed		A
8S2241	Camshaft Bearing Tool Group	1
8H684	Ratchet Box Wrench	1



1. Install balancer shaft front bearing (1) with tooling (A). Make sure the oil hole in the bearing is in alignment with the oil hole in the cylinder block. The bearing must be 0.8 ± 0.5 mm ($.03 \pm .02$ in.) inside the end of the cylinder block after installation.
2. Use tooling (A) to install the balancer shaft center bearing so the front of the bearing is 290.6 ± 0.5 mm ($11.44 \pm .02$ in.) from the front surface of the cylinder block. Make sure the oil hole in the bearing is in alignment with the oil hole in the cylinder block.

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