



Counter-rotating weights

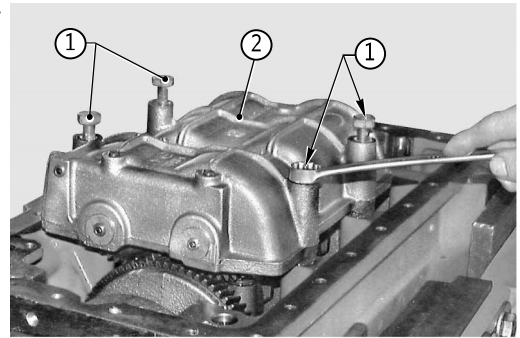
Removal of counter-rotating weights (4-cylinder version and if installed)

Loosen and remove screws (1) retaining counter-rotating weights assembly (2).



NOTE

Loosen the screws in a crosswise and alternate sequence.



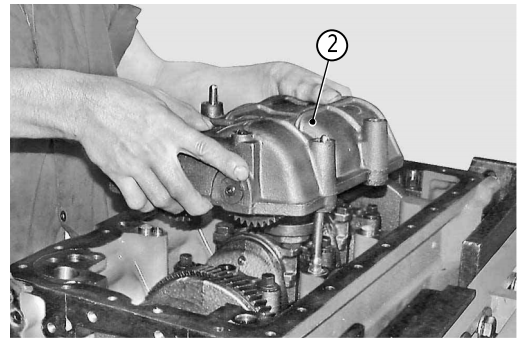
1.

Remove counter-rotating weights assembly (2).



NOTE

Recover shims, if any.



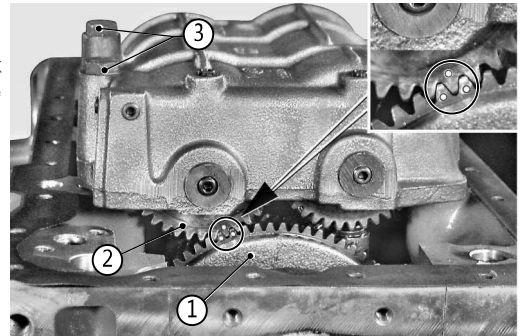
2.

Counter-rotating weights assembly

Mount the weights assembly after aligning the oilway pin.

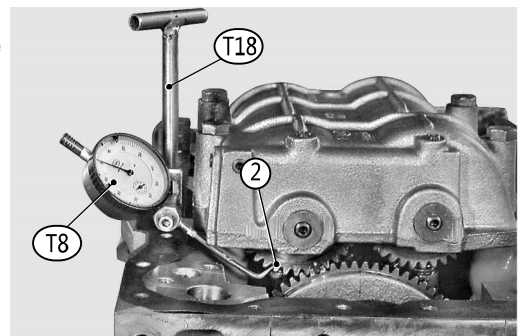
Raise the assembly from the gear side; turn crankshaft (1) and balance shaft (2) of counter-rotating weights until matching the reference notches of the respective gears.

Secure the assembly with screws (3).



1.

Position a dial gauge with contact point T8 (P/N 5.9030.888.0) installed on tool T18 (P/N 5.9030.886.0) resting alongside drive gear (2) and preload the gauge by about 2 mm.



2.

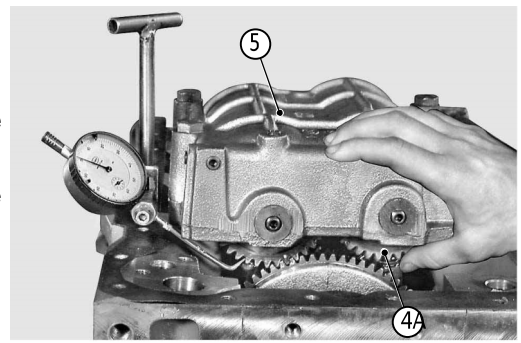
Manually turn driven gear (4) in both directions to check if backlash between teeth corresponds to the value indicated in "TECHNICAL DATA".

If necessary, add shims between the surface of the engine block and the 4 surfaces of the weights assembly (5) until the backlash is within the permissible range of tolerance.

Remove screws (3) securing the assembly, apply sealant and secure to the prescribed torque.

Screws: Loctite 242

Screws: 78 Nm (57.5 lb.ft.)



NOTE

Tighten alternate screws gradually in a cross-wise sequence.

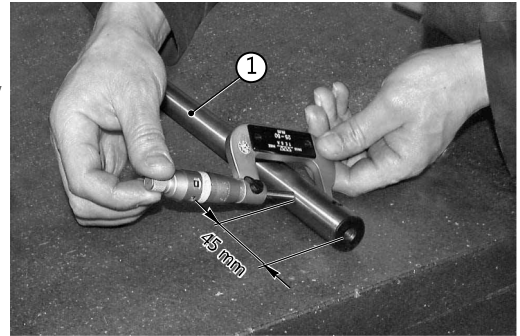
3.



Counter-rotating weight checks

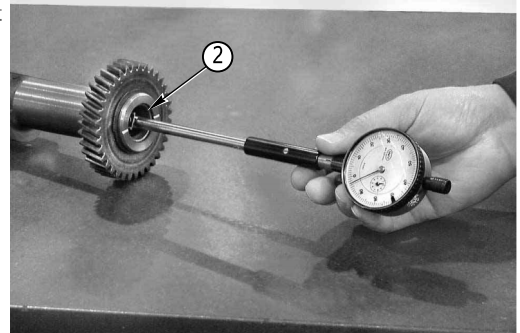
With a dial gauge, check the diameter of shafts (1) in the areas in which the counter-rotating weight bearings rotate.

If the values are lower than those indicated in "TECHNICAL DATA", renew the shafts.



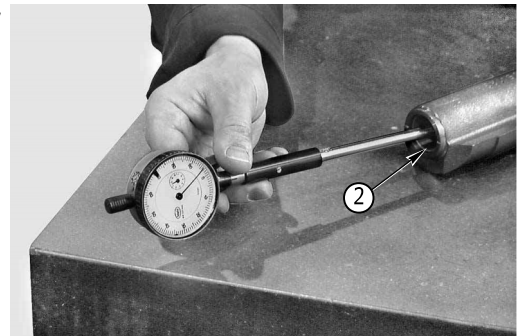
1.

With a dial bore gauge, check the diameter of counter-rotating weight bearings (2).



2.

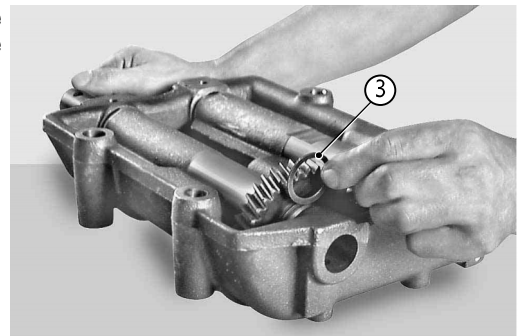
If wear exceeds the tolerance limits indicated in "TECHNICAL DATA", renew the bushes.



3.

After assembling the counter-rotating weights unit and before securing the shafts, check that counter-rotating weights end float is within the tolerance limits indicated in "TECHNICAL DATA".

If the end float exceeds the limit, renew thrust washers (3).



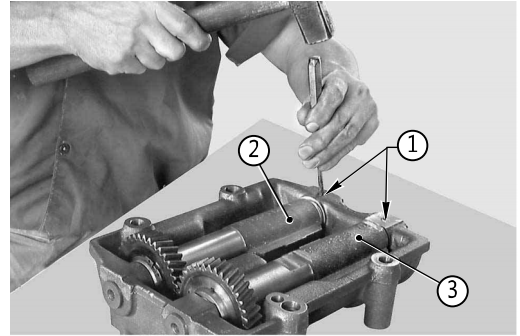
4.



Overhaul of counter-rotating weights assembly

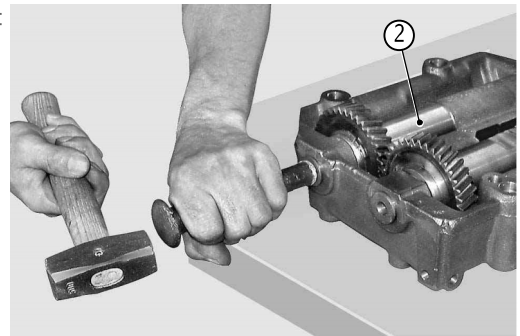
Disassembly

Using a pin punch, remove spring pins (1) securing shafts (2) and (3).



1.

Use a soft metal drift (aluminium, copper, etc.) to remove weights support shafts (2) and (3).



2.

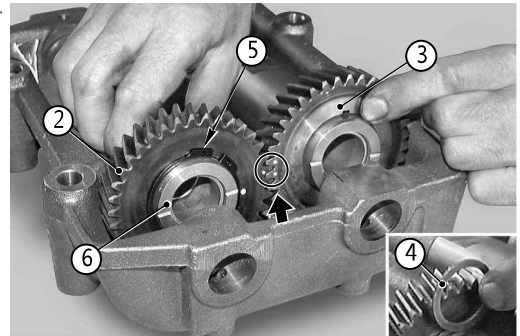
Remove counter-rotating shafts (2) and (3) and recover front and rear clearance washers (4).

Remove circlip (5) and remove gear (6) from driven shaft (2).



NOTE

Note that the reference of driven gear (2) is located between the marked teeth of the drive gear (3).



3.

Installation

To assemble, follow the disassembly steps in reverse order.

Shafts (2) and (3): Molikote



NOTE

Check assembly timing between the drive gear and the driven gear.



Valves check

Measure the diameter of the valve stem with a micrometer gauge



NOTE

Measure the stem in several points and with readings taken at positions that are 90° apart.



NOTE

If the diameter is not within the prescribed tolerance limits, renew the valves. See "TECHNICAL DATA AND DIMENSIONS" for the tolerance values.



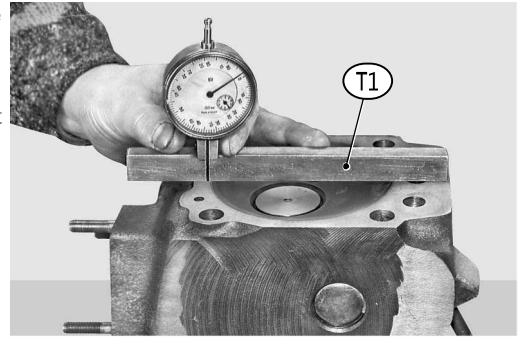
1.



Valve seats check

Using tool T1 (P/N 5.9030.433.0) and a dial gauge, check the recess of the valves with respect to the surface of the cylinder head.

If the recess of even a single valve is outside the tolerance values given in "TECHNICAL DATA AND DIMENSIONS", the valve seats and valves must be renewed by an authorised service centre.



1.

2. Check that valve seats and valves are in perfect condition and free of any dips or pitting in the sealing area.

If the valve seats show signs of defects that cannot be removed by grinding, have the valve seats changed by an authorised service centre.



NOTE

The new valve seats are supplied already pre-machined; they do not require any form of operation after installation, which must be carried out only after cooling the seats in liquid nitrogen.



NOTE

For the valves recess values and checking of the valve seat angles, refer to "TECHNICAL DATA AND DIMENSIONS".



Valves sealing check

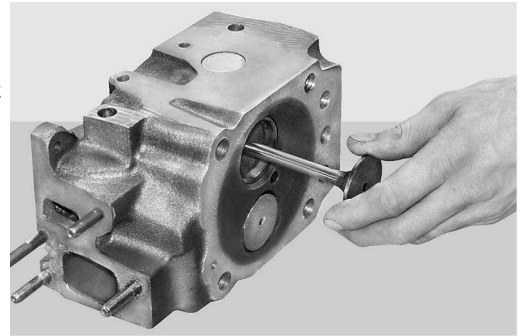
After cleaning the head entirely, lubricate the stems and fit the valves, springs and plates.

Check valve sealing by pouring drops of solvent through intake and exhaust pipes; valves that have been ground should not allow the solvent to leak, while slight leakage is permissible for new valves and seats.



NOTE

The valve seats will adapt automatically after a short period of engine operation.



1.



Adjusting valve clearance

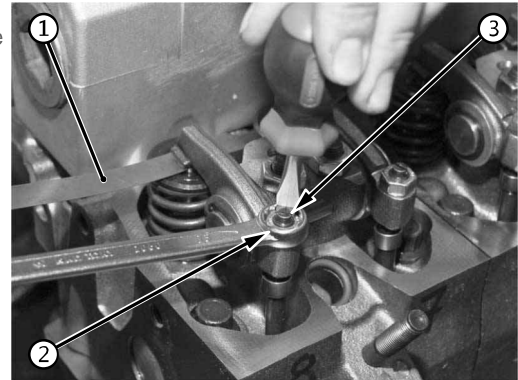
Adjusting valve clearance

Using feeler gauge (1) between valve and rocker arm, measure the valve clearance .

Valve clearances (intake and exhaust valves): 0.20 mm (0.008 in).

To set the valve clearance loosen nut (2) and turn set screw (3).

When the adjustment is completed, tighten nut (2).



1.

Valve clearance check

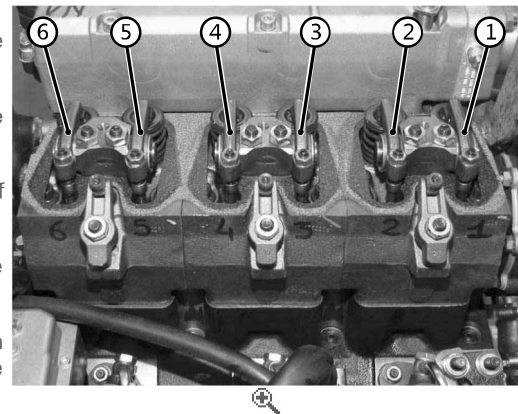
Number the rocker arms (from 1 to 6) starting from the rocker arm on the crankshaft pulley side.

Turn the crankshaft clockwise and bring rocker arms (1) and (4) to the maximum height position of the relative valves.

Check the clearance and adjust the valves of rocker arms (3), (5) and (6), if necessary.

Turn the crankshaft clockwise by 1 complete revolution and check the clearance and adjust the valves of rocker arms (1) and (4), if necessary.

Turn the crankshaft clockwise and bring rocker arm (3) to the maximum height position of the relative valve and check the clearance and adjust the valve of rocker arm (2).



1.

Thank you so much for reading.
Please click the “Buy Now!”
button below to download the
complete manual.



After you pay.

You can download the most
perfect and complete manual in
the world immediately.

Our support email:

ebooklibonline@outlook.com