

In servicing the lubrication system, use the following tools.

General tools and measuring devices

Micrometer for external measurement

Micrometer for internal measurement

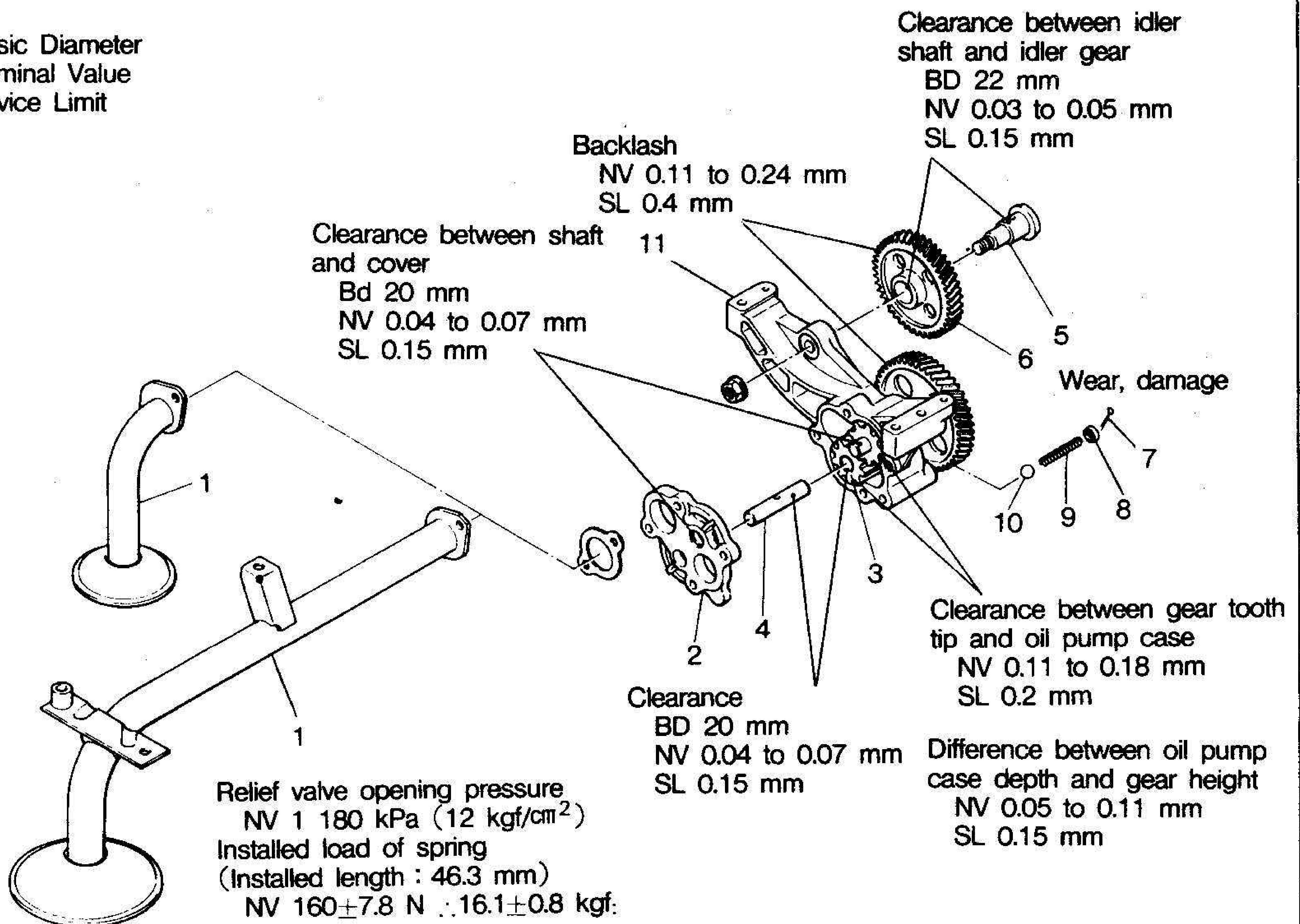
Straight edge

Thickness gauge

9-1 OIL PUMP

9-1-1 Disassembly and Inspection

BD...Basic Diameter
NV...Nominal Value
SL...Service Limit



1 Oil strainer

2 Oil pump cover

3 Driven gear

4 Driven gear shaft

5 Idler gear shaft

6 Idler gear

7 to 10 Relief valve

7 Split pin

8 Seat

9 Spring

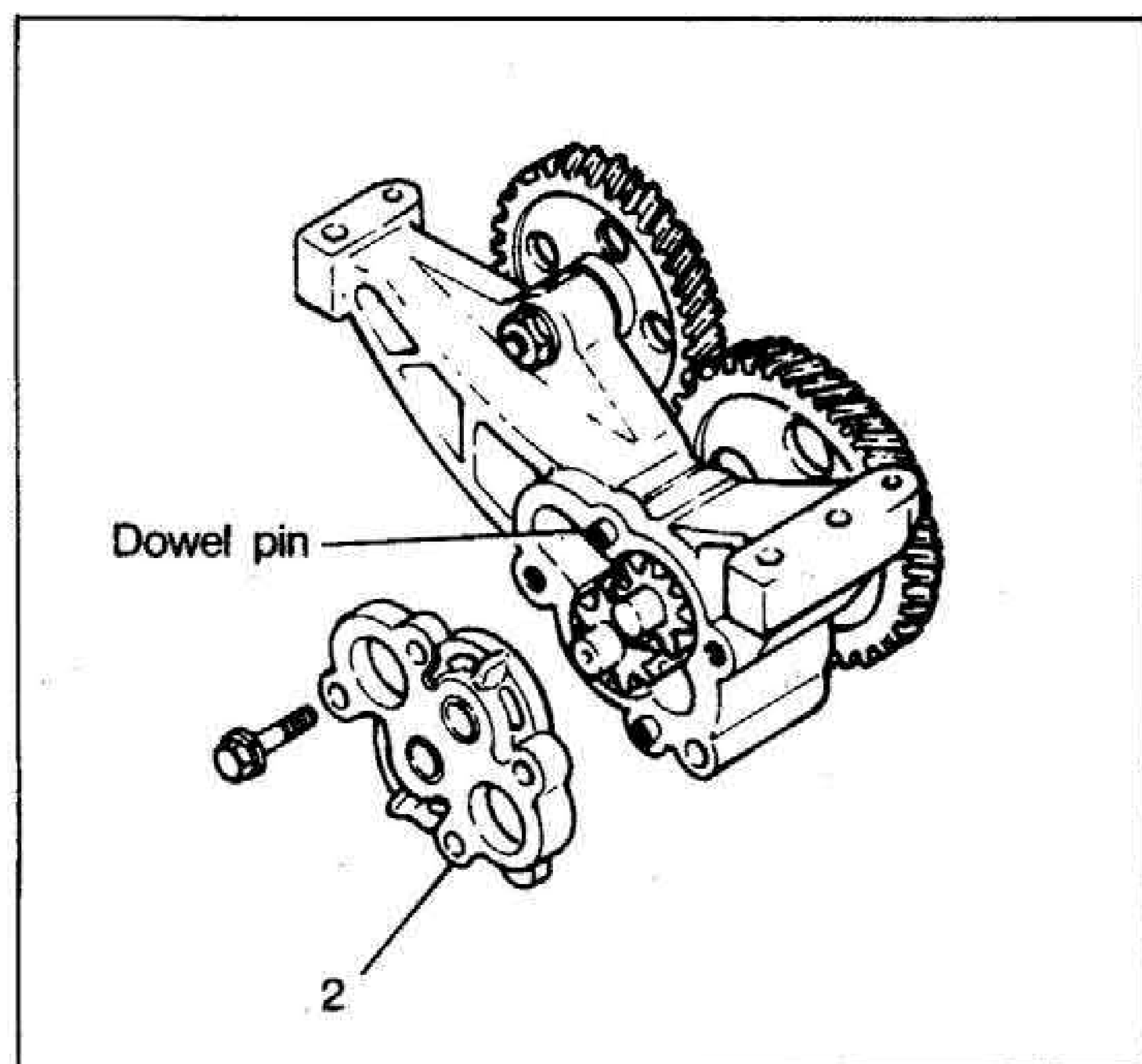
10 Ball

11 Case and gear assembly

When disassembling the oil pump, pay attention to the following items.

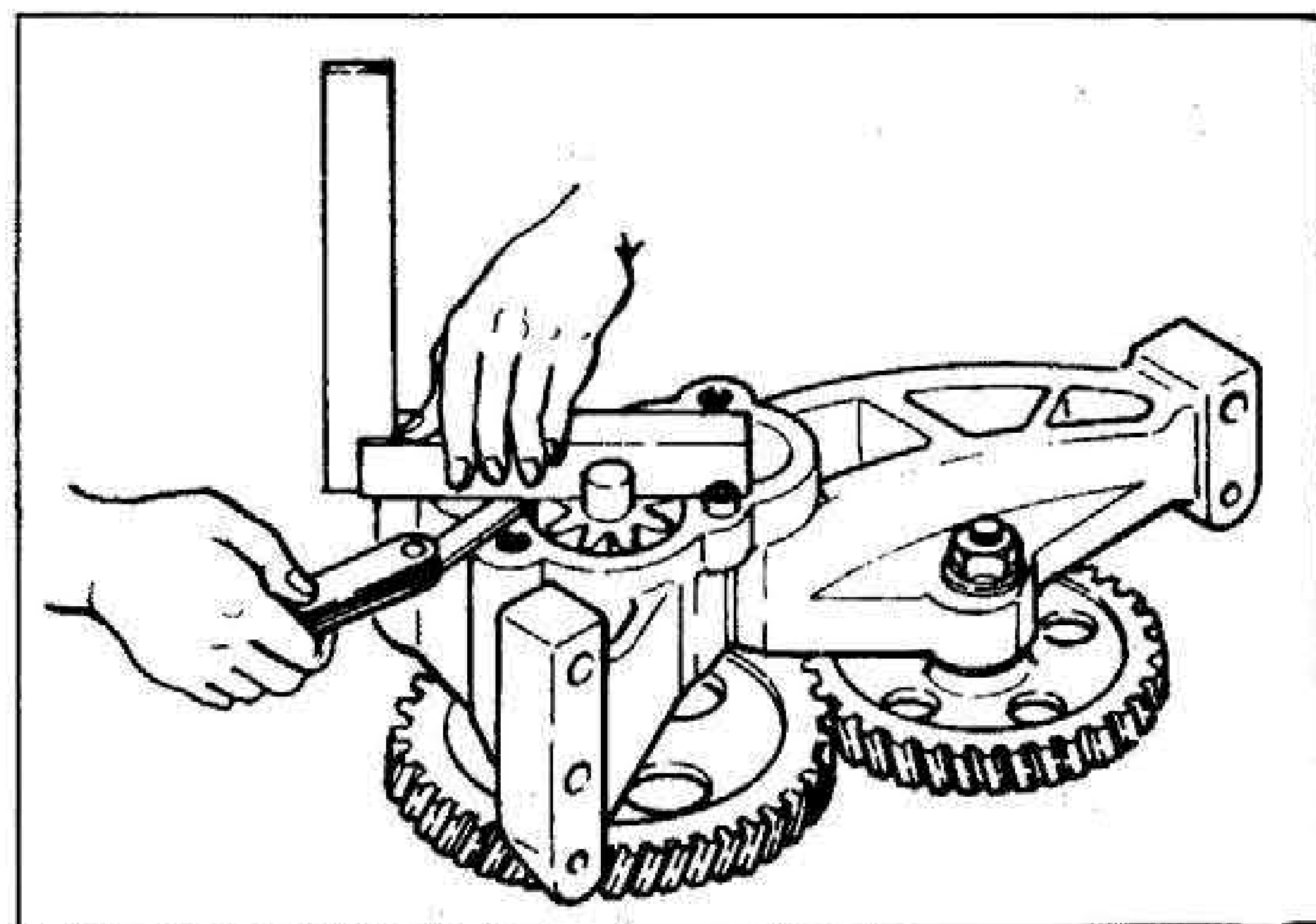
- (1) Prior to disassembly, measure and record the backlash between the oil pump gear and idler gear.
- (2) Remove the oil strainer 1. Remove the oil pump cover 2 by lightly striking with a plastic hammer, etc.

NOTE : The oil pump cover is positioned by the dowel pin in the oil pump case.

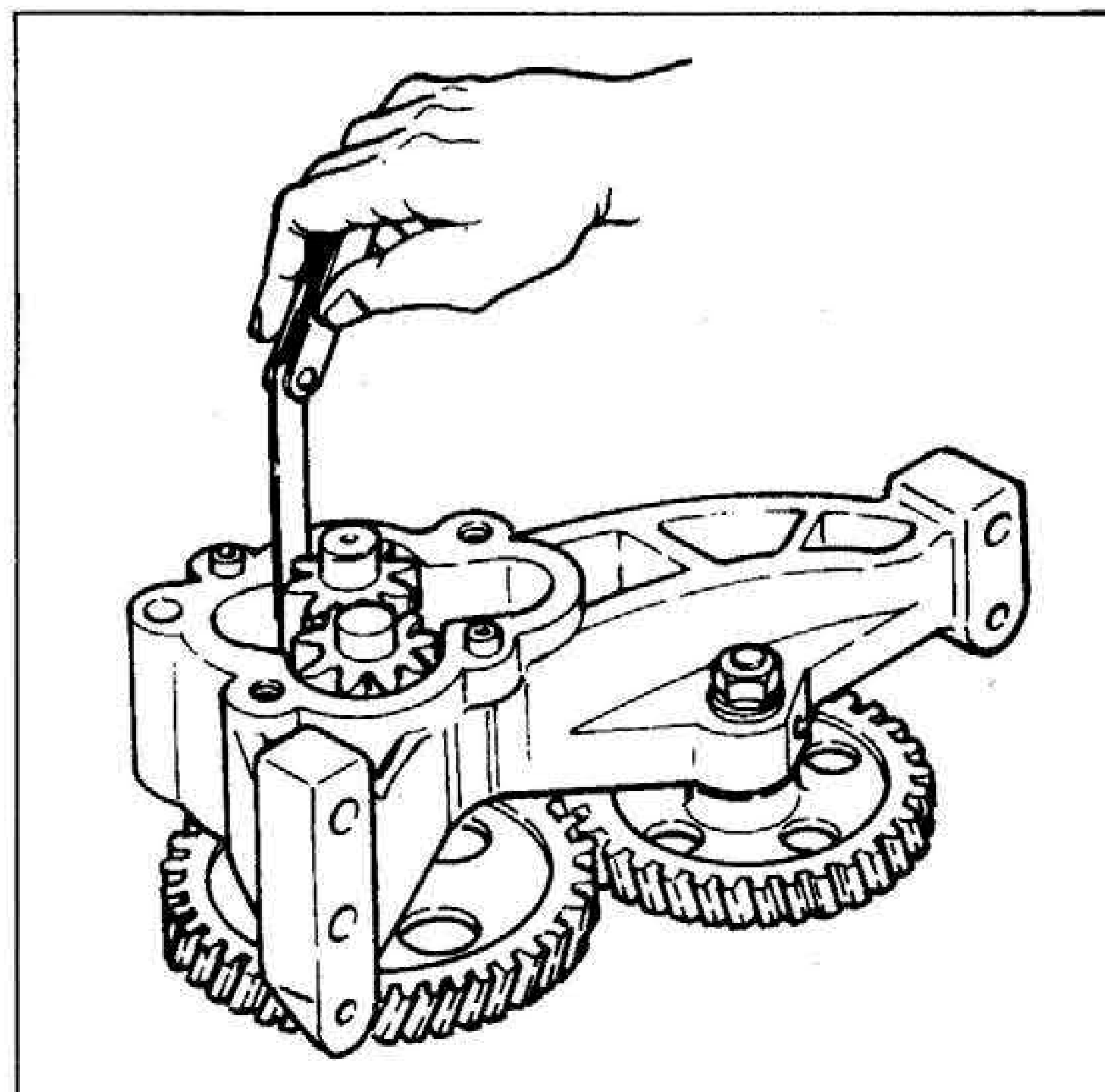


- (3) Before the drive gear and driven gear are removed, measure and record the following items.

- (a) Measure the difference between the drive and driven gear height and the oil pump case depth with a thickness gauge.



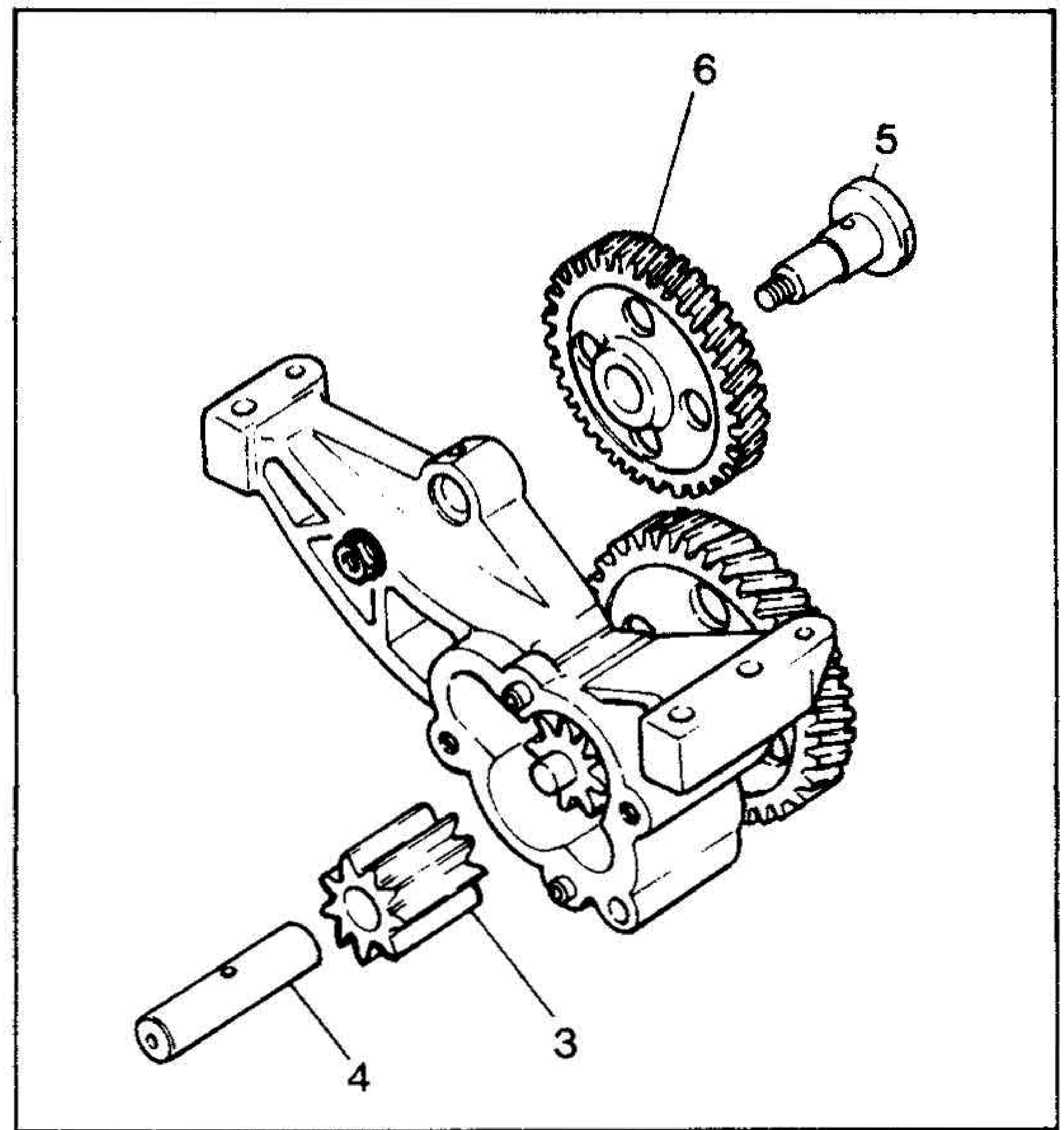
- (b) Measure the clearance between the drive and driven gear tooth ends and the oil pump case with a thickness gauge.



(4) Remove the following parts.

- 3 Drive gear
- 4 Driven gear shaft
- 5 Idler gear shaft
- 6 Idler gear

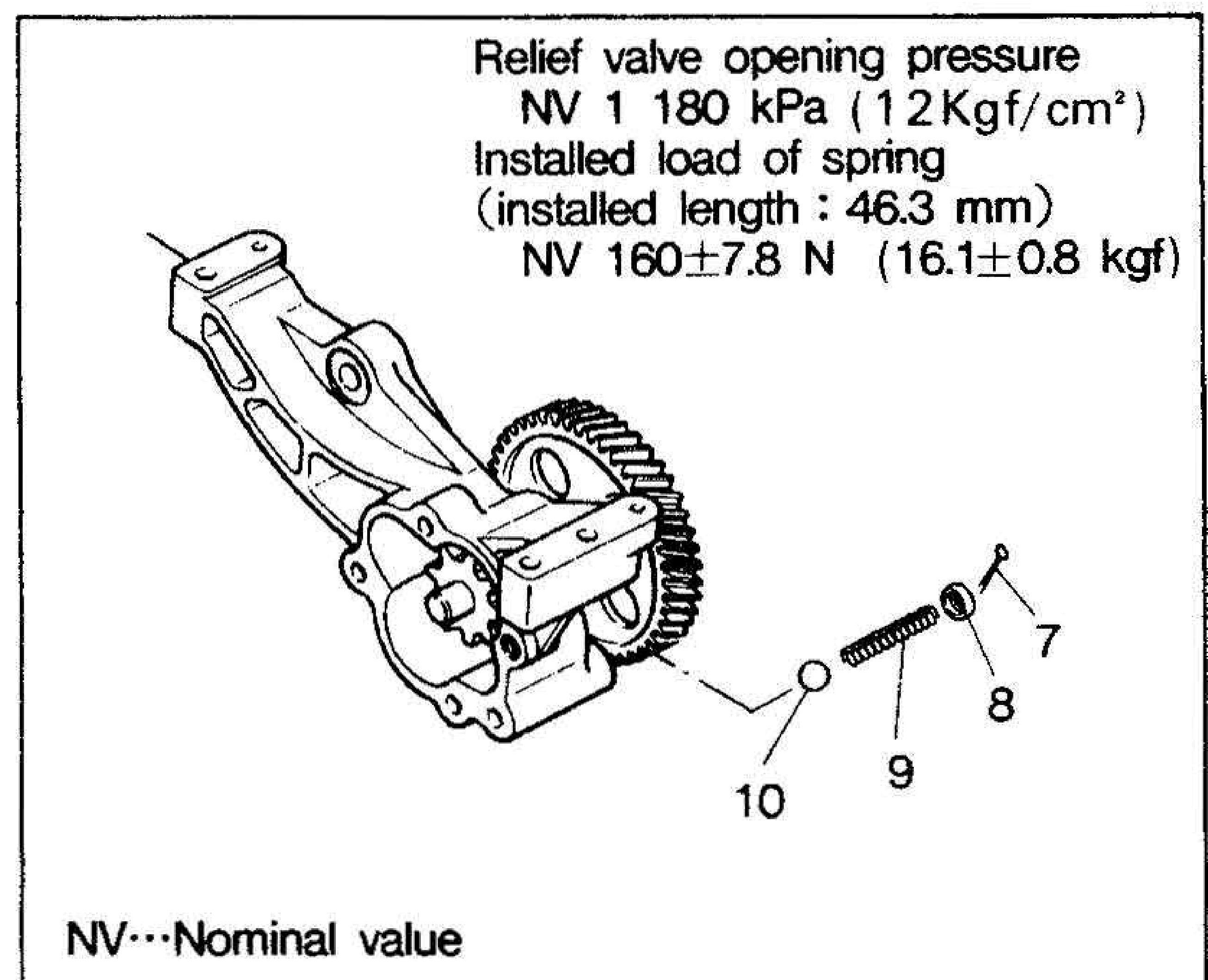
NOTE : Do not remove the driven gear shaft unless it is defective, as an insufficient interference with the oil pump case could otherwise result.



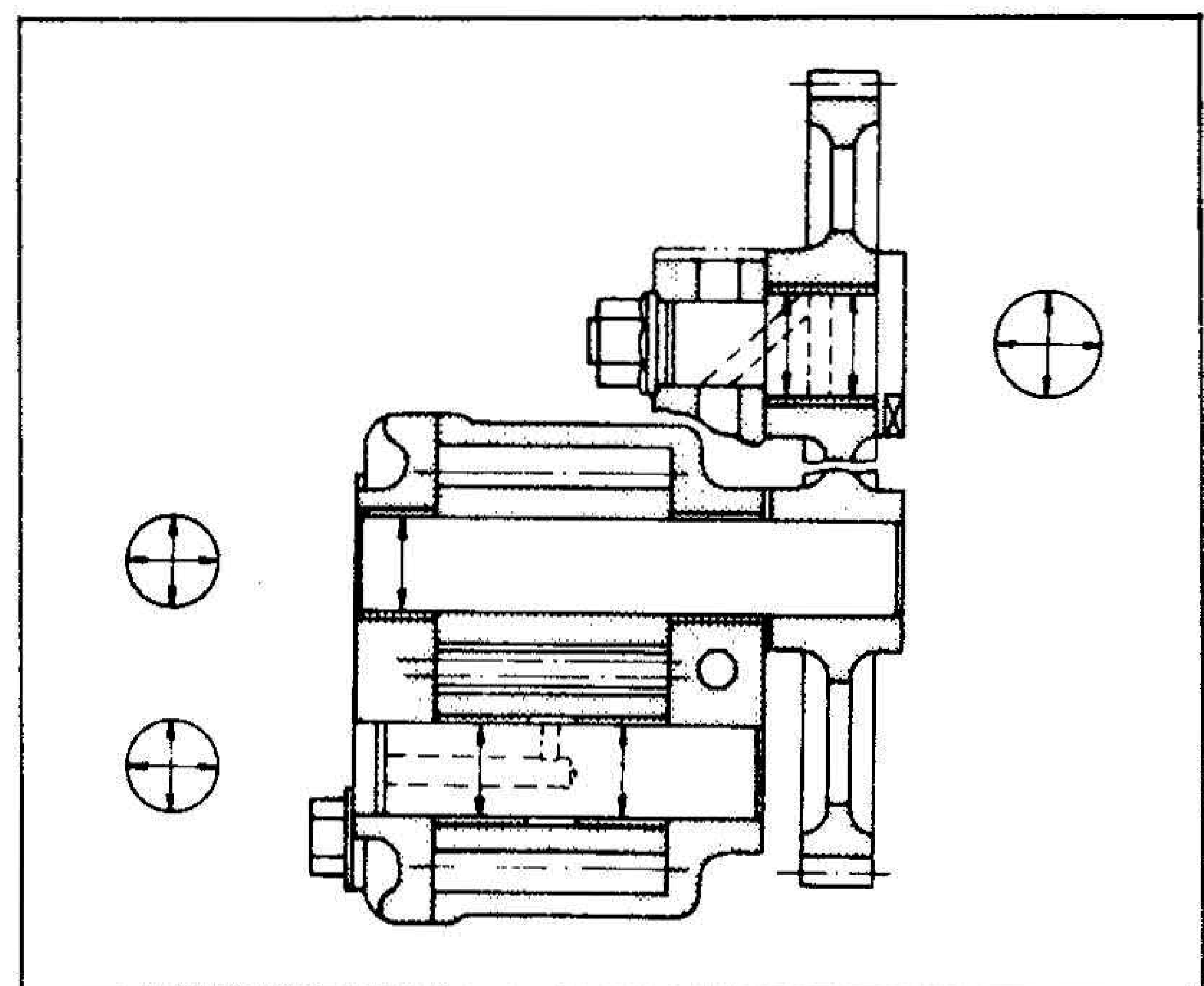
(5) Remove the following parts.

- 7 Split pin
- 8 Seat
- 9 Spring
- 10 Ball

NOTE : The case and gear assembly cannot be disassembled. If defective, replace as an assembly.

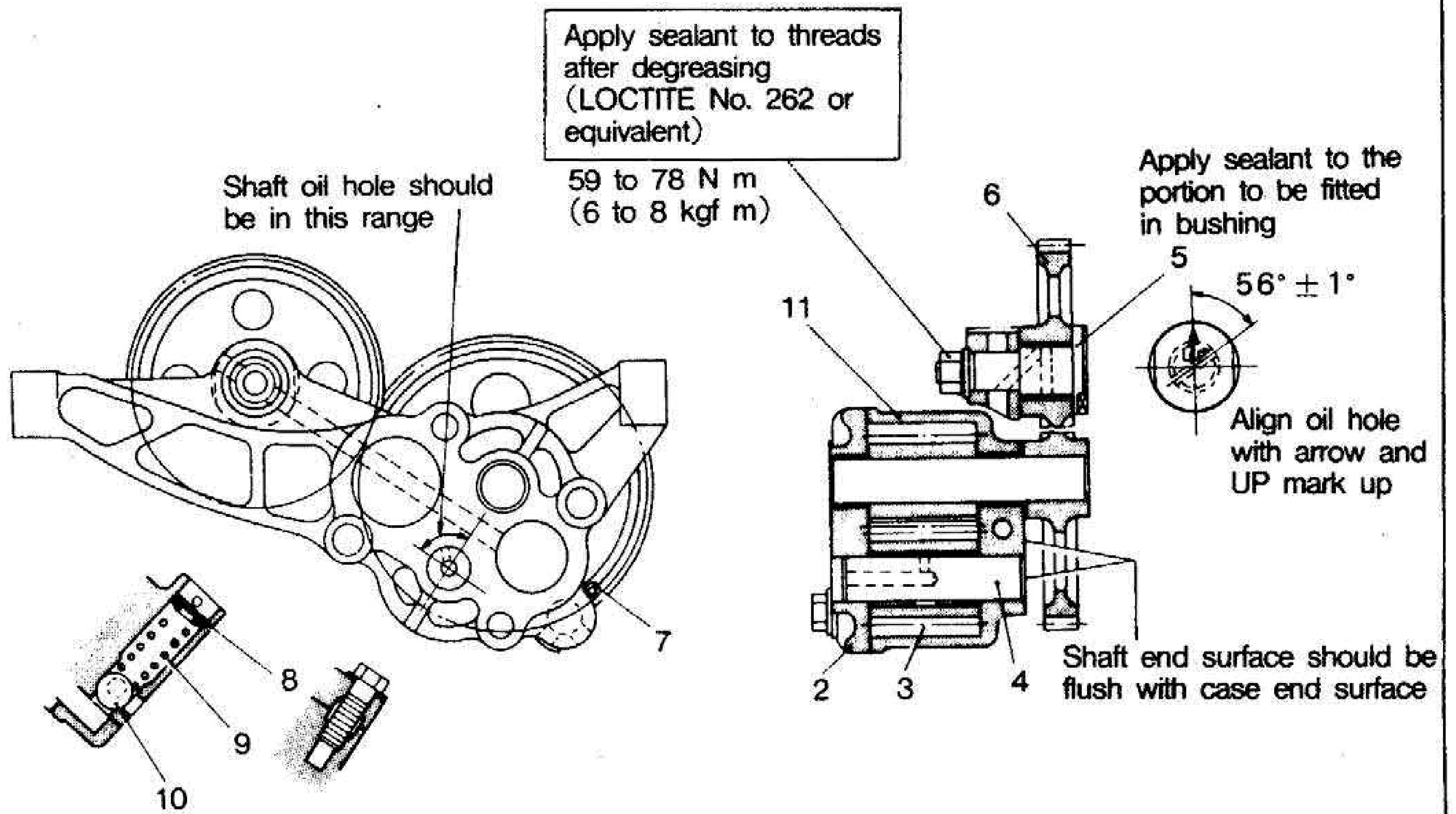


(6) Measure and record the outside diameters of the drive gear shaft, driven gear shaft and idler gear shaft. Then, measure and record the inside diameter of each bushing in the oil pump case, cover and driven gear. Calculate the clearances from the measured values, and the parts which have exceeded the service limits should be replaced.



9-1-2 Reassembly

Prior to reassembly, apply engine oil to all parts unless otherwise specified.



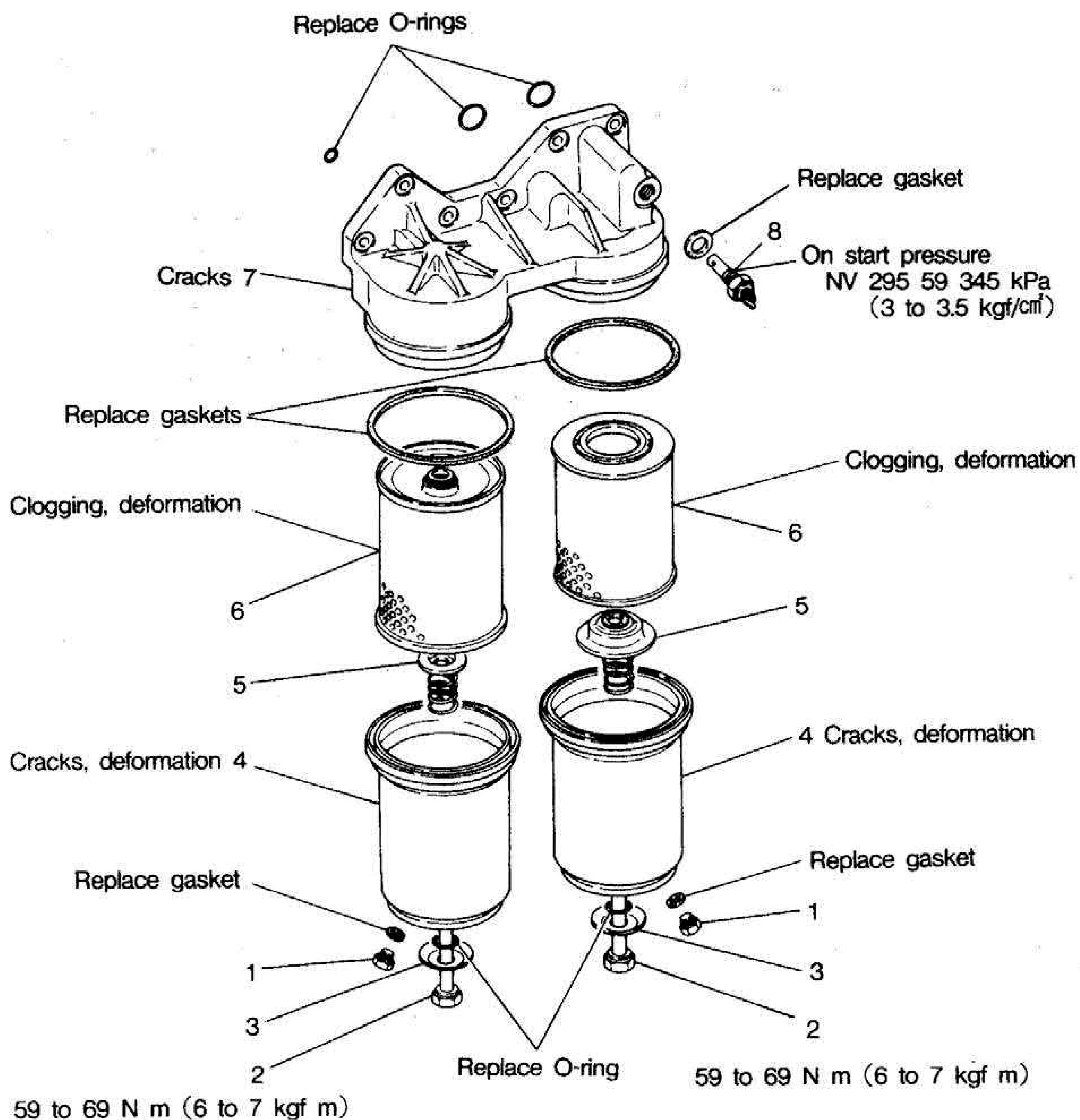
Assembling sequence

11→10→9→8→7→6→5→4→3→2

NOTE : Temporarily tighten the oil strainer 1 for installation in the crankcase.

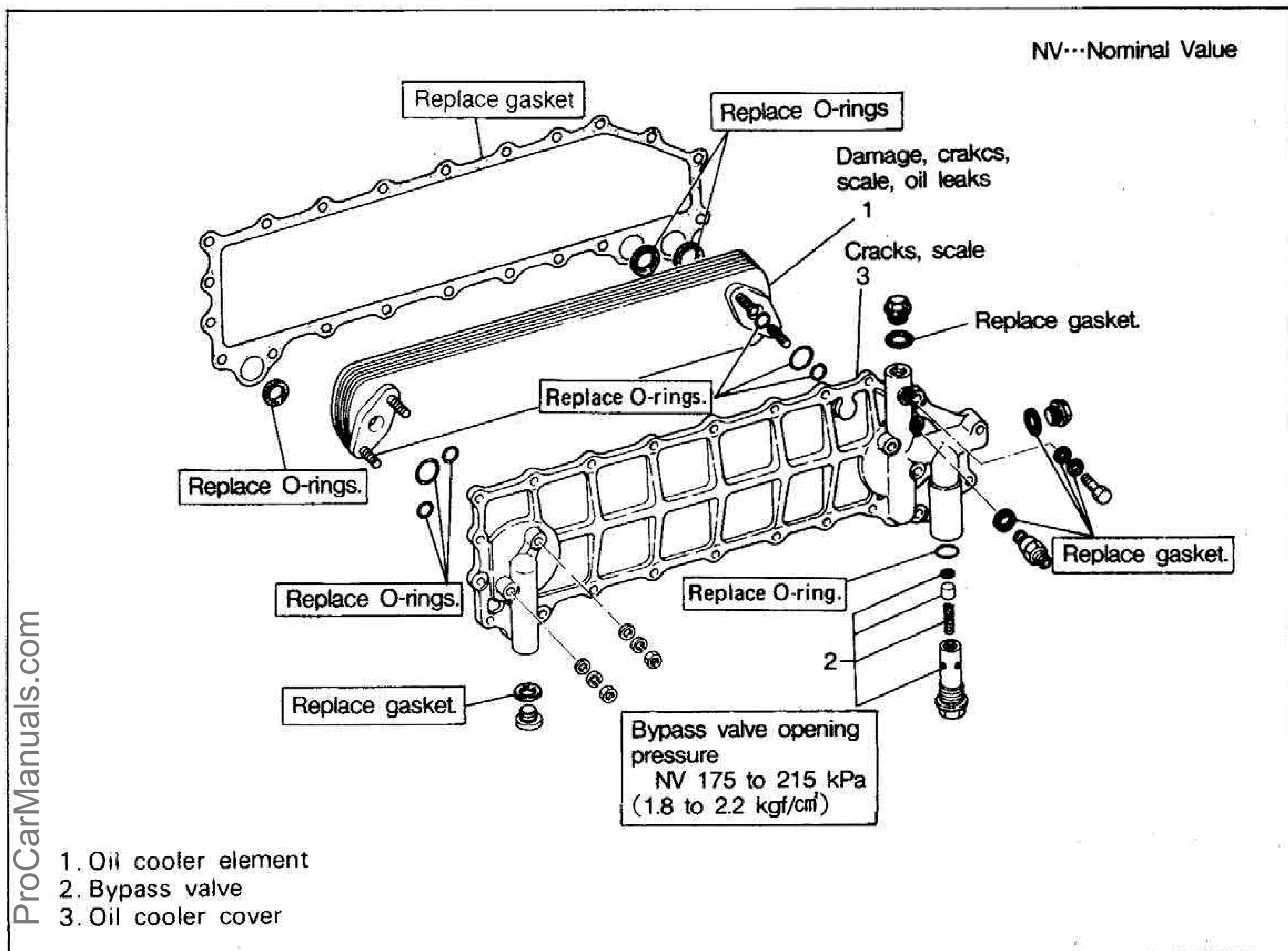
9-2 OIL FILTER

NV...Nominal Value



- | | |
|-------------------|----------------------|
| 1 Drain plug | 5 Spring retainer |
| 2 Center bolt | 6 Oil filter element |
| 3 Washer | 7 Oil filter head |
| 4 Oil filter case | 8 Oil bypass alarm |

9-3 OIL COOLER



9-3-1 Cleaning

- (1) Check for carbon or sludge deposited in the oil passage of the oil cooler element and bypass valve. If contamination is evident, wash in a cleaning oil.
- (2) If there is much scale on the element and cover, wash in the cleaner Radipet 7 or caustic soda solution.

9-3-2 Air Pressure Test

To check for oil leaks due to a broken or cracked element, air pressure test should be performed.

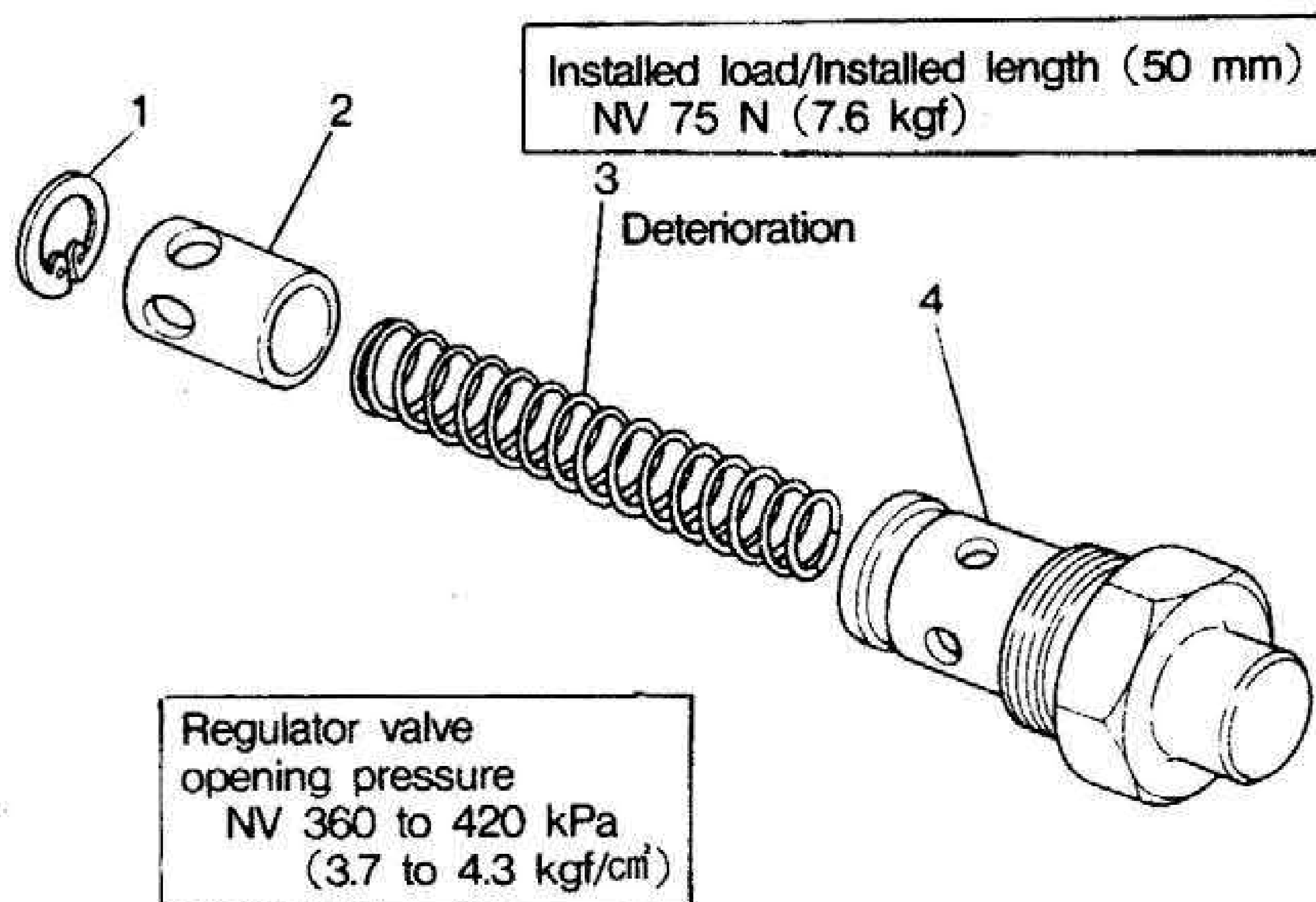
Apply 980 kPa(10 kgf/m²) air pressure to the element to check for leaks.

If air leaks or other defects are evident, replace the element.

NOTE : Make sure that the specified air pressure is not exceeded.

9-4 REGULATOR VALVE

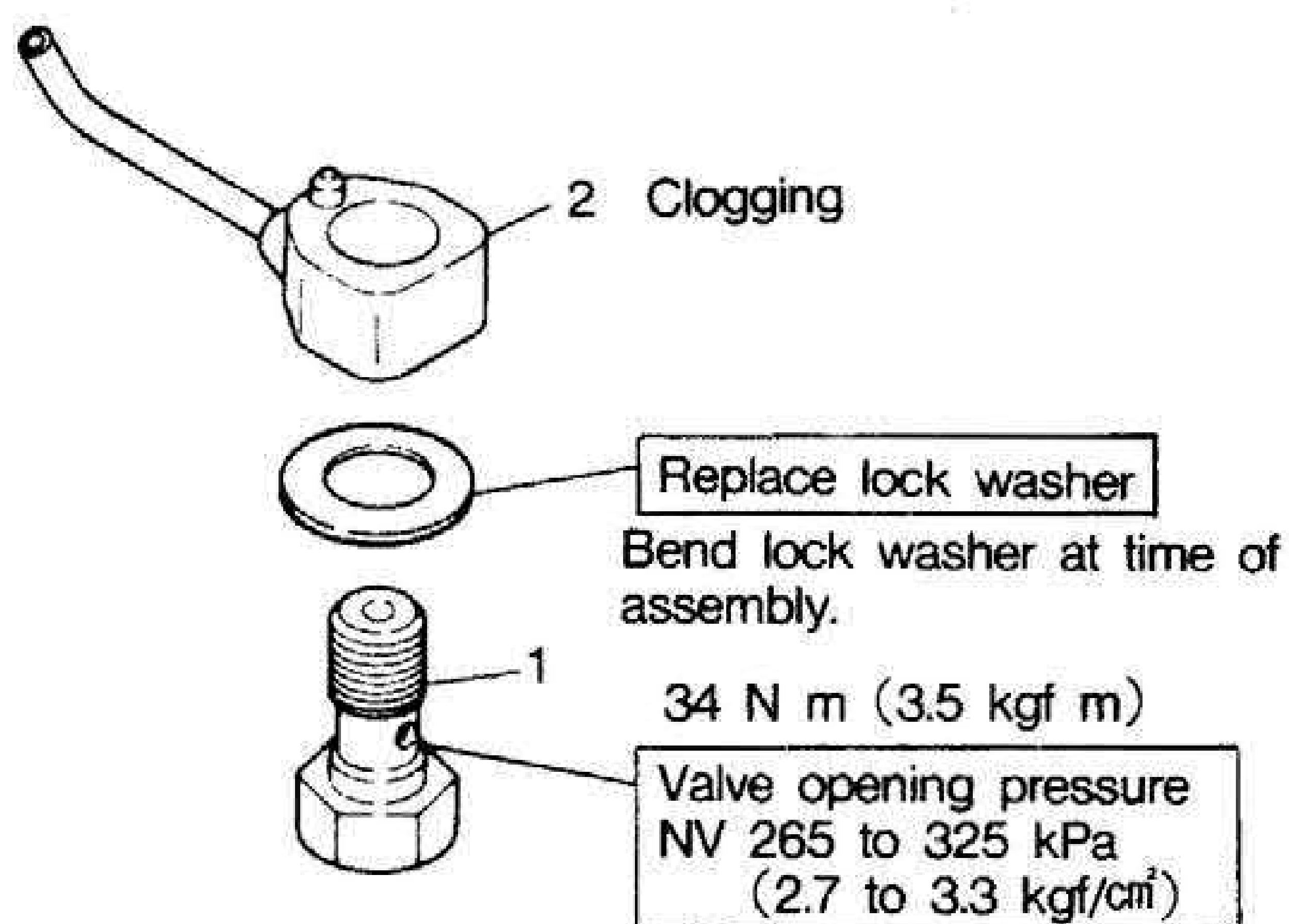
- 1 Snap ring
- 2 Valve
- 3 Spring
- 4 Body



NV...Nominal value

9-5 CHECK VALVE

- 1 Check valve
- 2 Oil jet body



NV...Nominal value