

L28/32H Timing

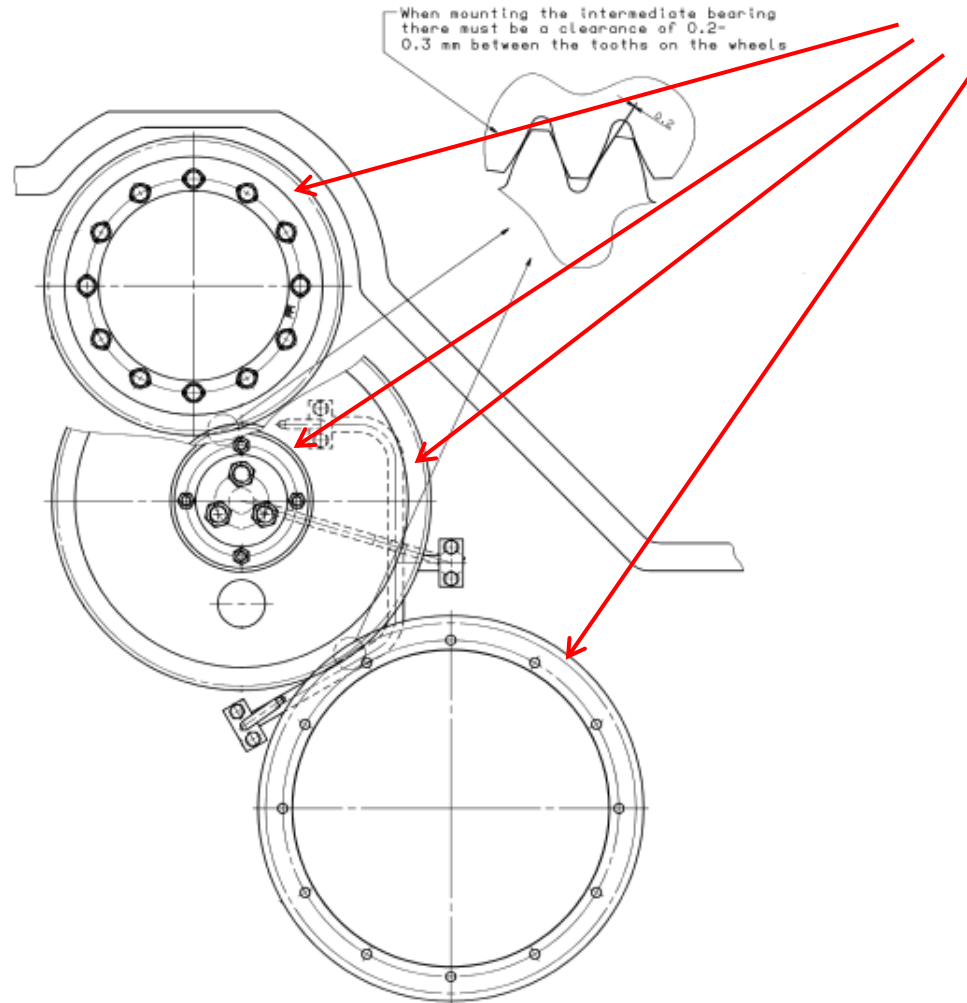


L28/32H timing general

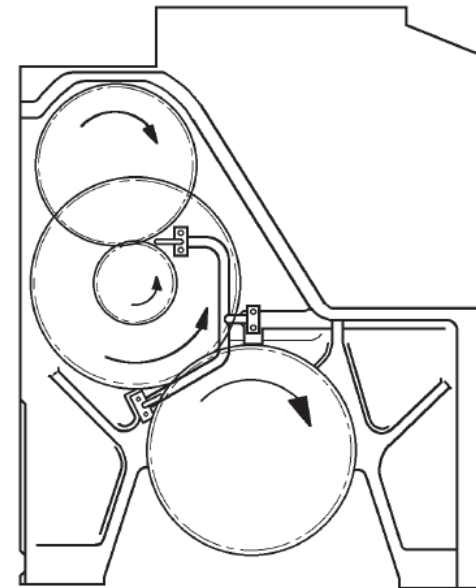


The camshaft controls the inlet valves, exhaust valves and fuel injection pumps. It is driven by a gear wheel on the crankshaft through an intermediate wheel, and rotation speed is half of the crankshaft.

L28/32H timing general



Engine seen from aft - fly wheel end



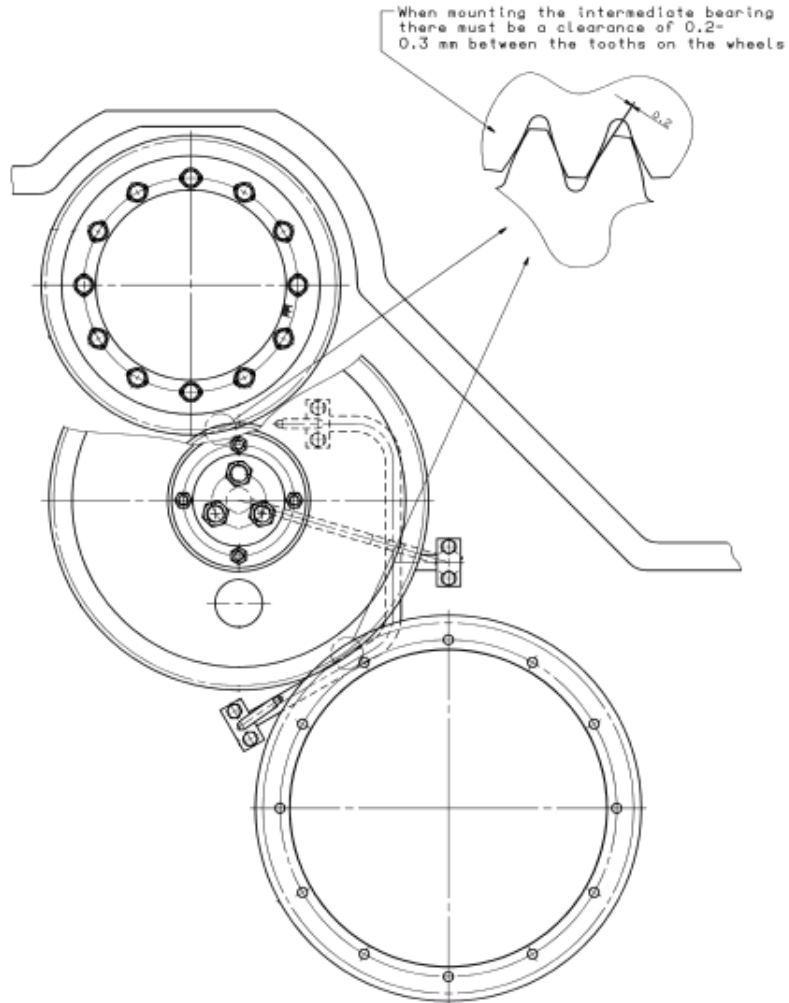
Clockwise rotation direction

L28/32H timing general

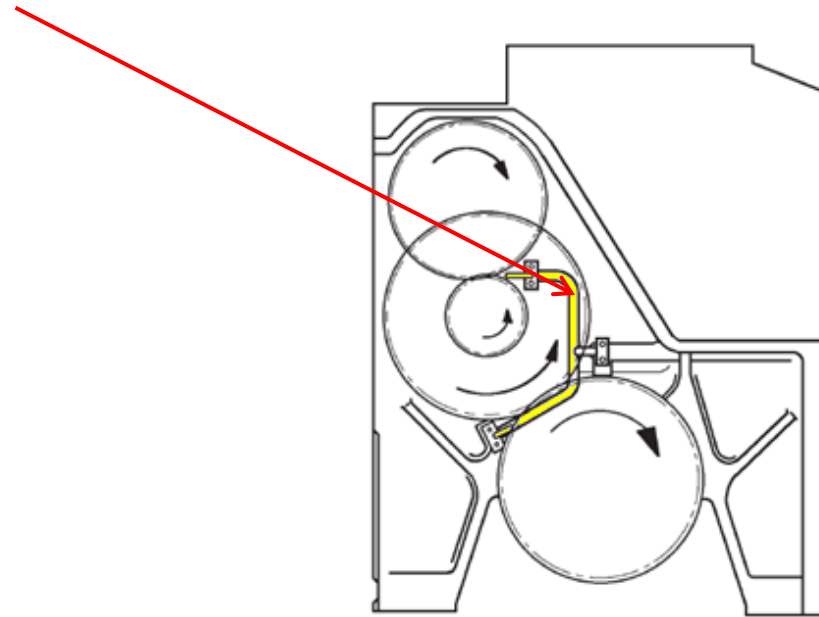


The lubricating oil pipes for the gear wheels are equipped with nozzles. The position of the nozzles is determined by direction of rotation of the engine.

L28/32H timing general



Engine seen from aft - fly wheel end



Clockwise rotation direction

L28/32H timing general



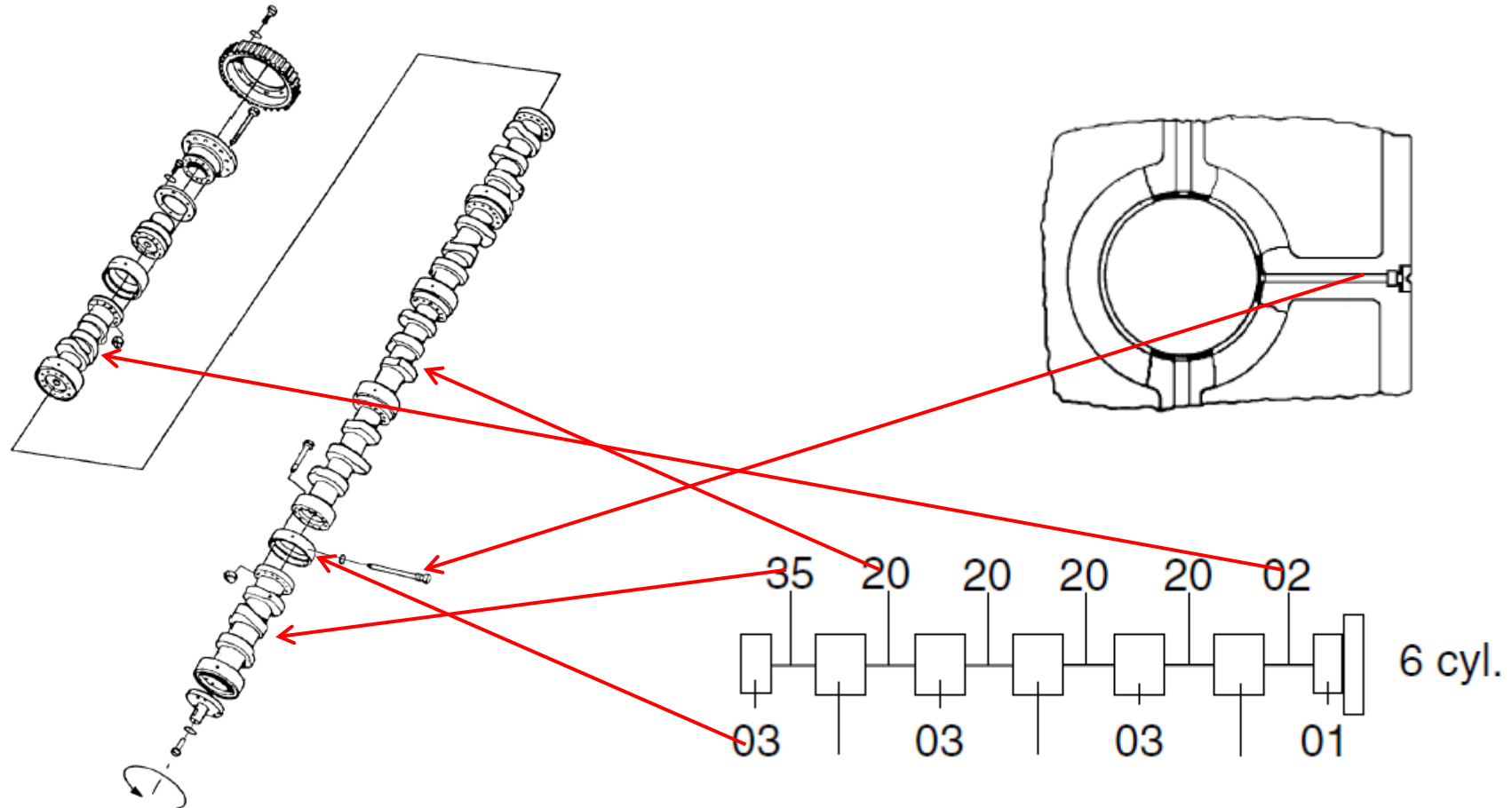
The camshaft is built-up of sections, one for each cylinder unit. Each section is equipped with fixed cams for operation of fuel injection pump, air inlet valve and exhaust valve.

Except for the foremost and the aft most ones, the sections are identical and therefore interchangeable.

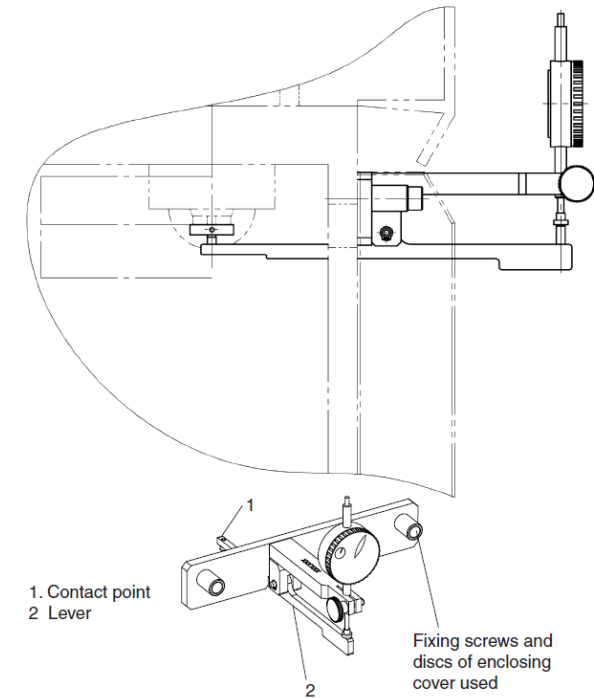
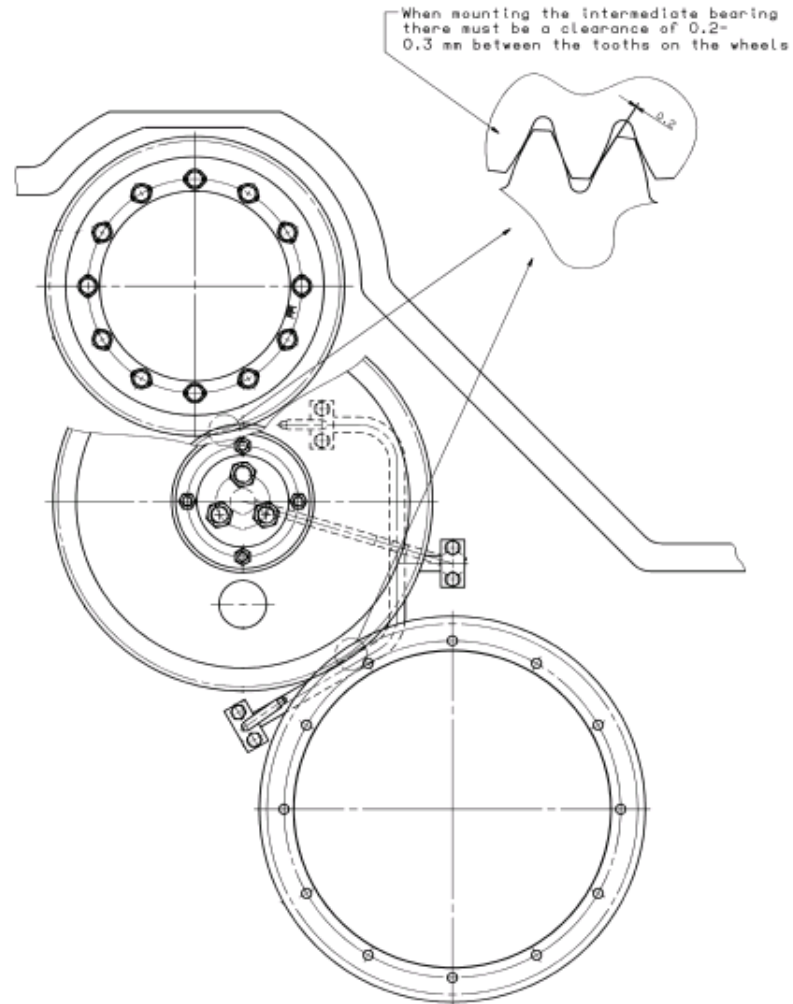
The foremost section is equipped with a clutch for driving the fuel oil feed pump (if mounted).

The gear wheel for driving the camshaft as well as a gear wheel connection of governor are screwed on the aft most section.

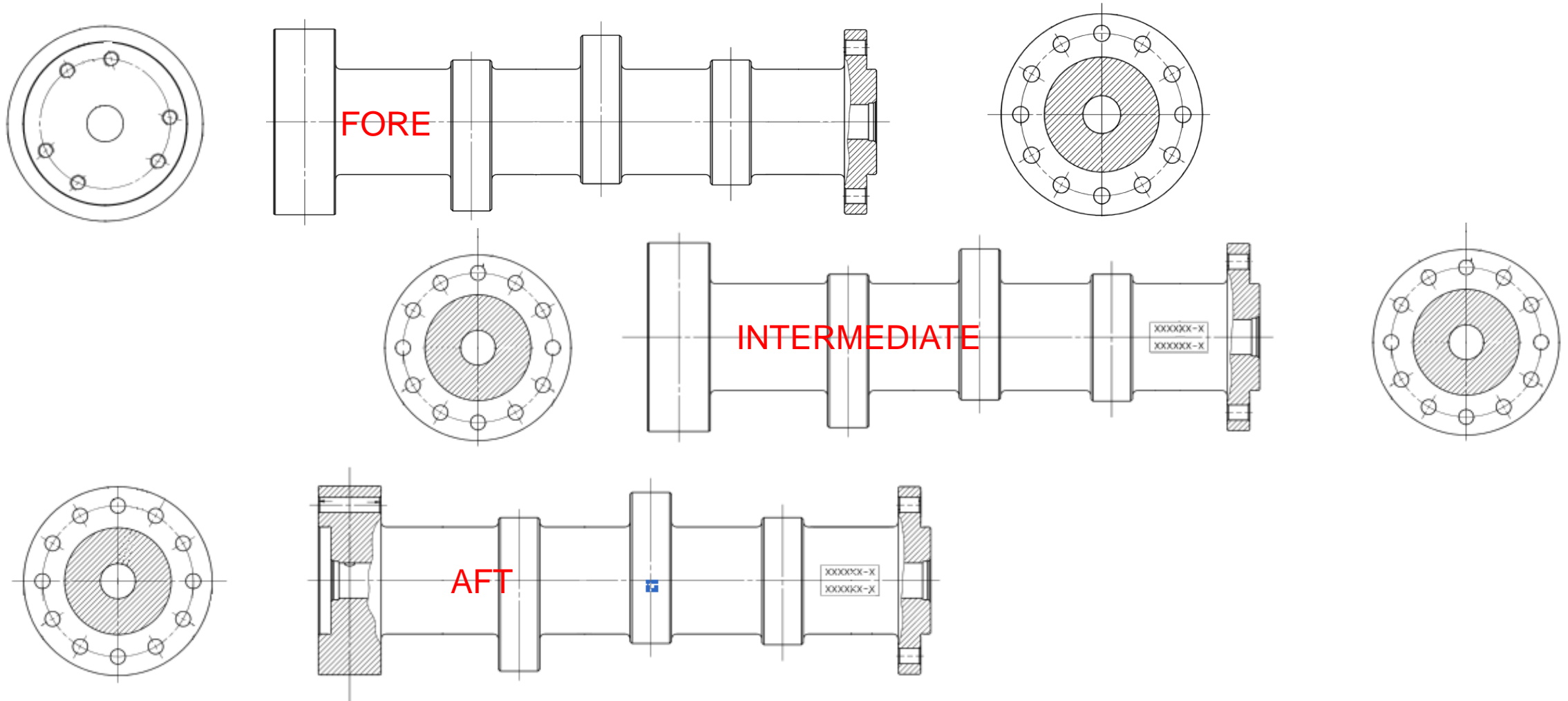
Timing of Camshaft for Valve and Injection Timing



L28/32H normal timing



Timing of Camshaft for Valve and Injection Timing



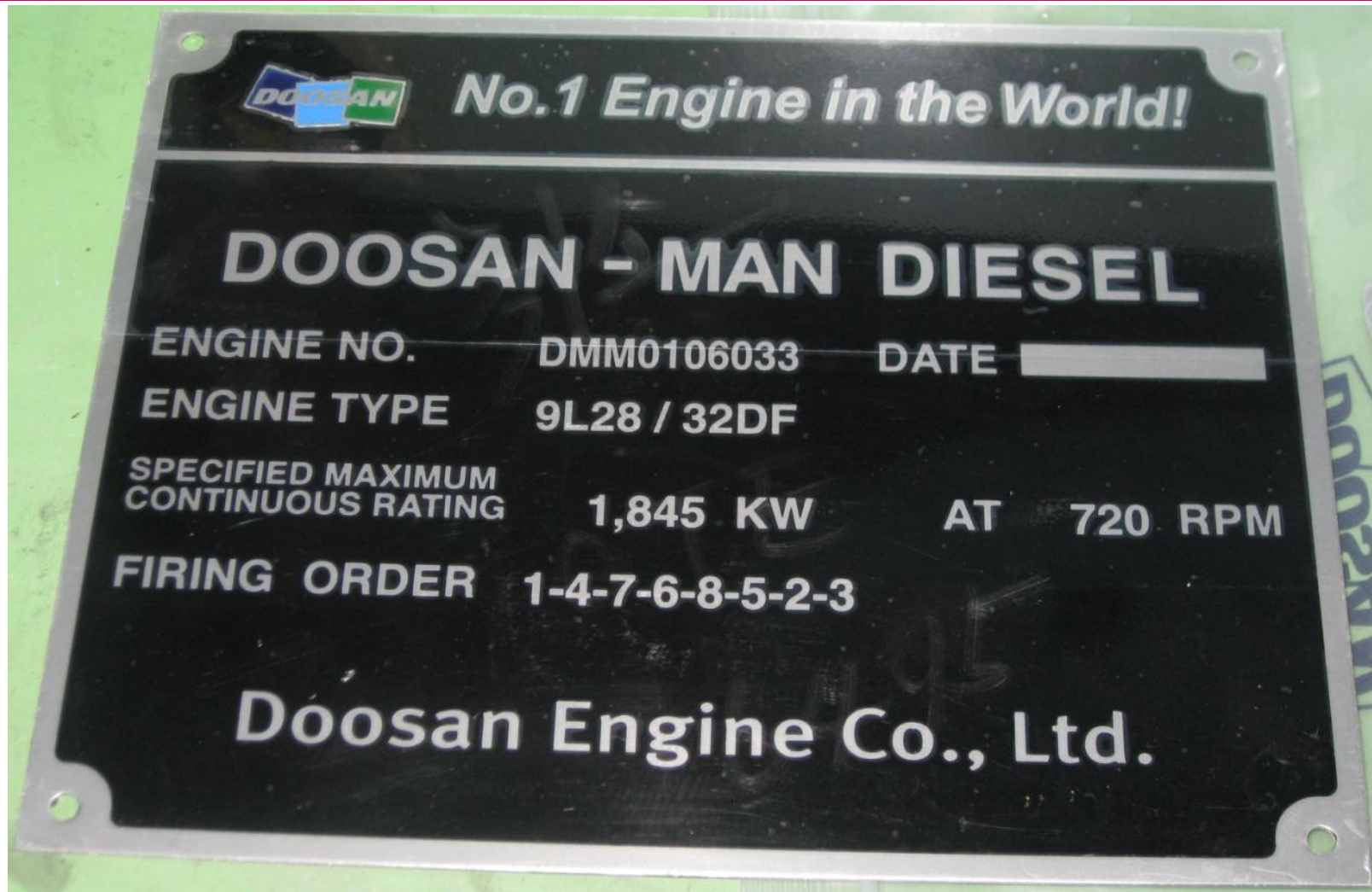
Adjustment of Camshaft for Valve and Injection Timing



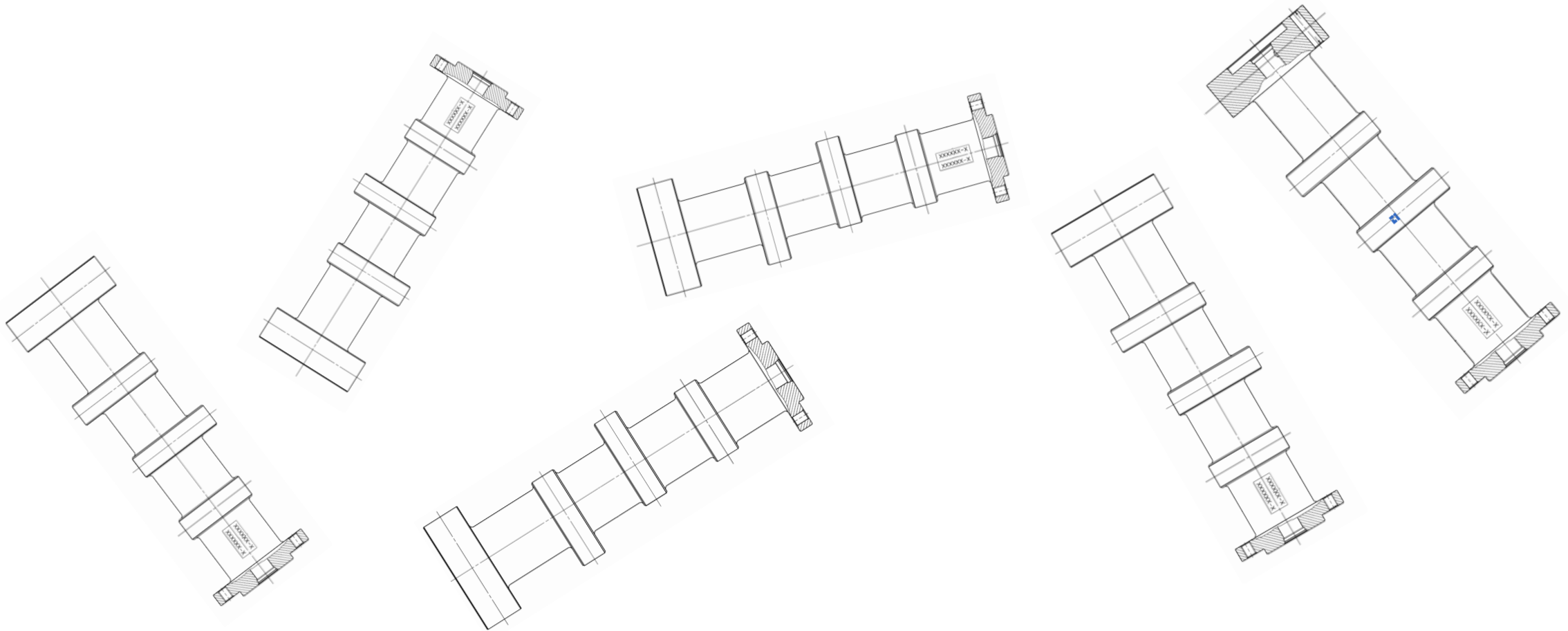
Cylinder	Number of holes
5	10
6	12
7	7
8	8
9	9

L28/32H	5cyL	1	2	4	5	3													
	6cyL	1	4	2	6	3	5												
	7cyL	1	2	4	6	7	5	3											
	8cyL	1	2	4	6	8	7	5	3										
	9cyL	1	5	9	3	6	8	2	4	7									

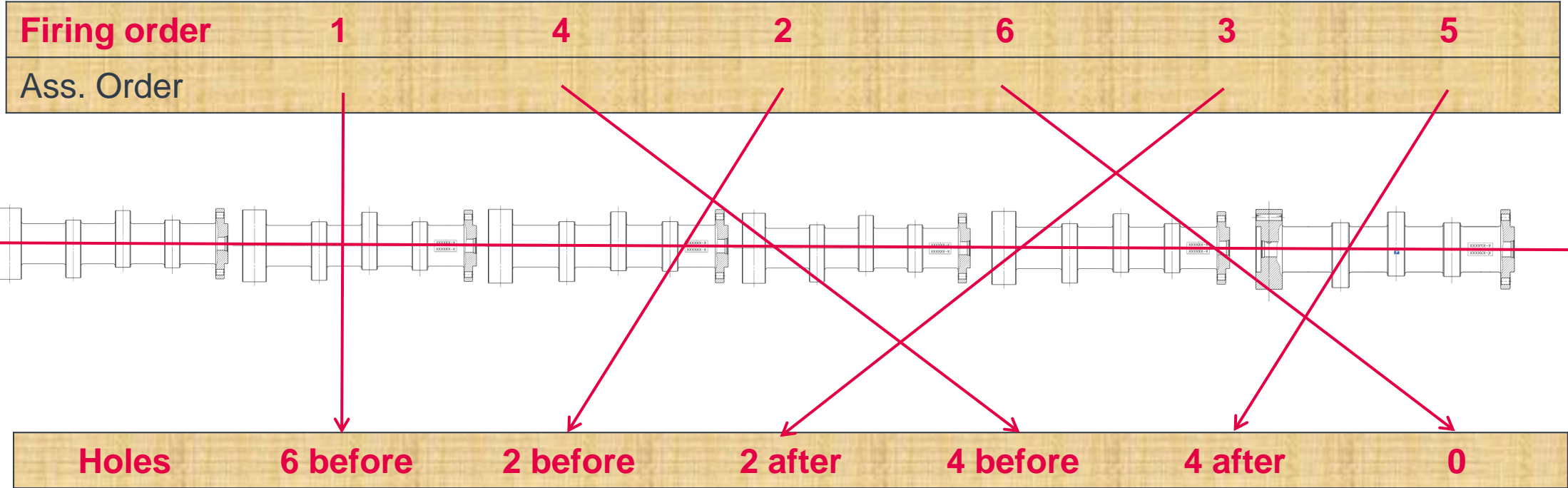
L28/32H timing general



Cam shaft sections



Building up the camshaft in the right order



L28/32H timing task

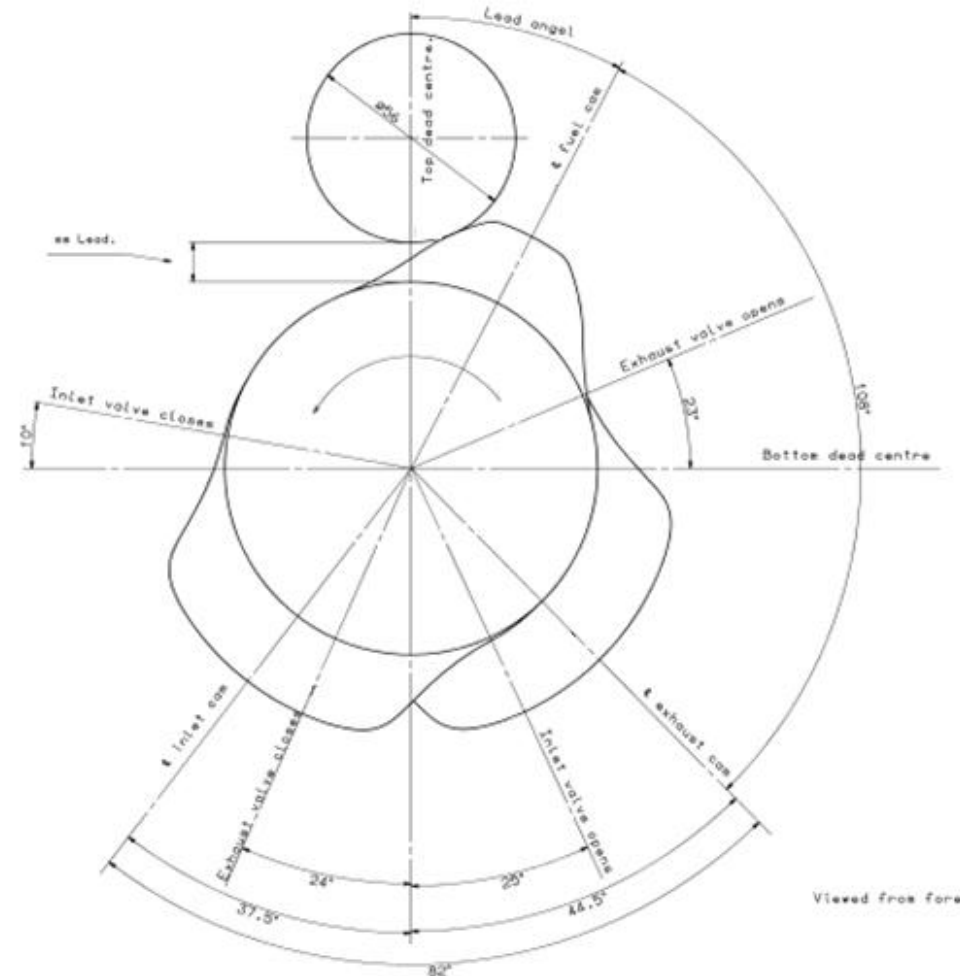


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Firing order: 1-2-4-6-8-7-5-3

Task is to assemble in correct order and position.

Adjustment of Camshaft for Valve and Injection Timing



Adjustment of Camshaft for Valve and Injection Timing



Check of fuel pump lead after installation

Turn engine to pos. cylinder No. 1 until the cam base circle is reached (approx. 40° BTDC).

Position the support of the measuring tool on the camshaft covering.

Set the dial gauge to "Zero".

Turn the engine until the TDC mark (ignition TDC) for the actual cylinder is reached.

Read the dial gauge and note down the gauge value.

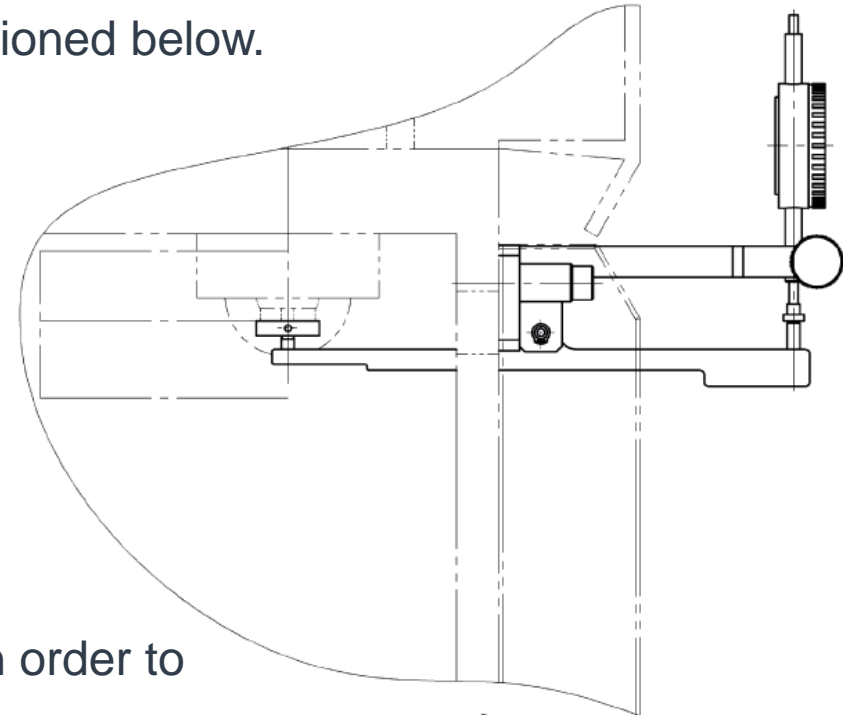
Determine the values for the other cylinders in the same way.

Calculate the average value of all measurements.

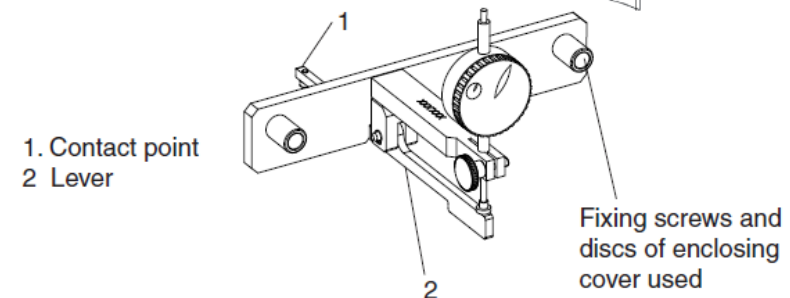
Adjustment of Camshaft for Valve and Injection Timing



Compare the calculated value determined with the value mentioned below.



If the values exceeds the limits, an adjustment must be done in order to correct the errors, on the X-measure or reset the gear wheel.



Adjustment of Camshaft for Valve and Injection Timing



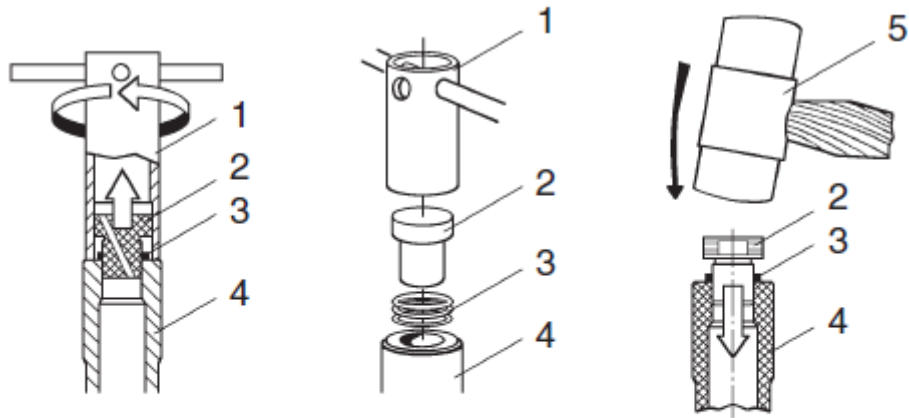
To get the same lifting values on the plunger/combustion pressure on the different cylinders the "X"-measure can be changed.

When changing "X" it must be ensured that the distance between the upper edge of the roller guide housing and the thrust piece on the roller guide is not exceeded, when the roller is resting on the circular part of the fuel cam.

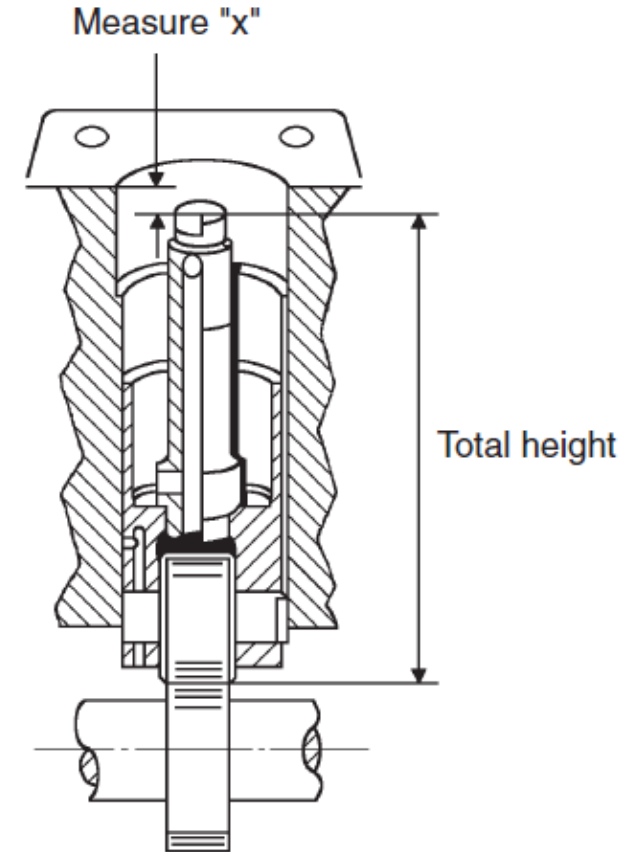
In all cases "X" must be checked and adjusted, if necessary, when fuel oil pump, roller guide, roller guide housing and/or camshaft section have been replaced / dismantled.

Note: If several fuel oil pumps, roller guides, roller guide housings and/or camshaft sections are dismantled at the same time it is advisable to number the parts in order to facilitate remounting and adjustment.

Adjustment of Camshaft for Valve and Injection Timing



- | | | | |
|---|-------------|---|--------------|
| 1 | Extractor | 2 | Thrust piece |
| 3 | Shims | 4 | Roller guide |
| 5 | Soft hammer | | |



Adjustment of Camshaft for Valve and Injection Timing



Action	Results		
	Distance "x"	Injection timing	Max. combustion pressure
↑	↓	↑	↑
↓	↑	↓	↓

Adjustment of Camshaft for Valve and Injection Timing



The gear wheel is provided with an engraved scale, and the hub of the cam shaft is provided with a mark.

When the screws, which fasten the gear wheel, are loosened the gear wheel is turned (by turning the crankshaft) in relation to the camshaft.

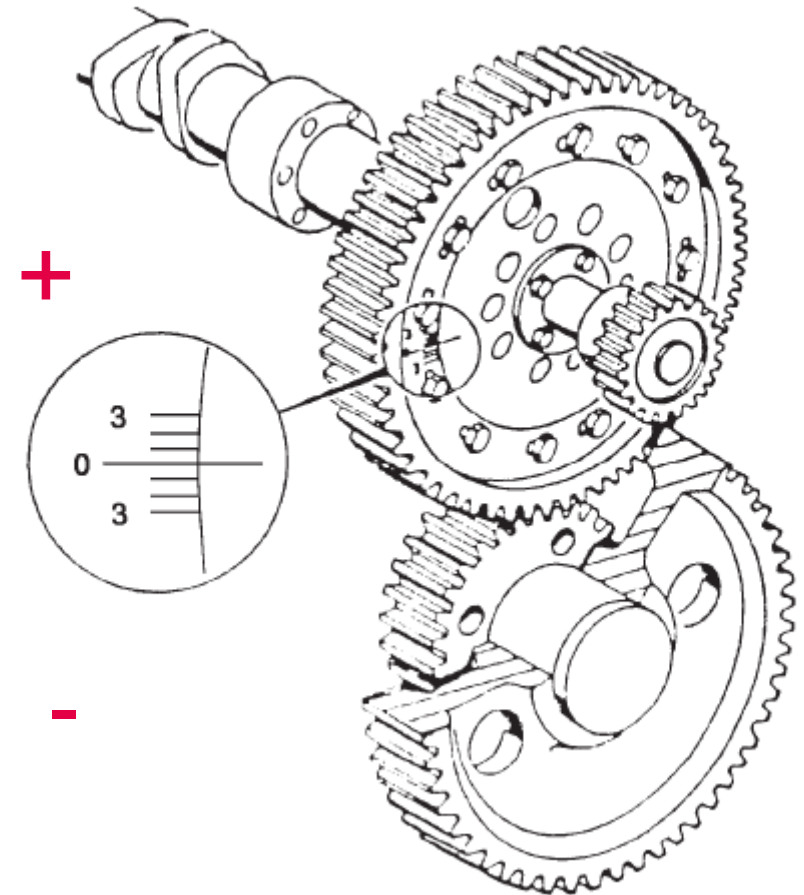
If the crankshaft is turned in the engines normal direction of rotation the injection timing is retarded (closer to TDC).

If the crankshaft is turned against the engines normal direction of rotation the injection timing is advanced (away from TDC).

Adjustment of Camshaft for Valve and Injection Timing



Cyl. kW/Cyl. rpm Average value
5-6-7-8-9 210 720 *See section 600,*
5-6-7-8-9 220 750 *Description 600.35*



Check of camshaft and camshaft drive



Examine all gear wheels for cracks, wear and deformations. While turning the engine to enable inspection all over the circumference of the gear wheels.

Check all screws, nuts and bolted connections, including locking devices everywhere in the gear wheel housing, camshaft housing and crank case to check that they have not worked loose.

Examine all lubricating oil spray pipe nozzles.

Start the electrical lubricating oil pump and check the oil flow everywhere. Be particularly careful to check that the oil jet hits the gear wheels correctly.

Disclaimer



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Do you have any more questions?

