

MCK0240

VALVE TIMING PROCEDURE

In some engines it is necessary to use two spacers in order to align the camshaft gears. The spacers are positioned on the camshaft toothed-gears with the slots facing the wheels.



Manufacturer: **Opel / Vauxhall**

Engine code: **X10XE / X12XE / Z10XE / Z10XEP / Z12XE / Z12XEP / Z14XEP**

Special equipment

- Camshaft blocking tool - n. KM-953.
- Camshaft position sensor disc adjustment tool - n. KM-954.
- Engine shaft blocking pin - n. KM-952.
- Chain tensioner blocking pin - n. KM-955-1.

General precautions

- Always disconnect the ground cable from the battery.
- Remove the spark plugs in order to allow the engine to turn more freely.
- Always turn the engine in the normal direction of rotation (unless specifically instructed otherwise).
- **DO NOT** use the special equipment listed above to block the engine when the pinion or pulley bolts are loosened.
- Observe tightening torques.
- If fitted: Note the position of the engine shaft position sensor before dismantling.
- **DO NOT** turn the engine shaft by turning the camshaft or other pinions.
- **DO NOT** turn the engine shaft or camshaft with the timing chain removed.

Valve timing procedure

- Turn the engine shaft to the first TDC mark on cylinder n. 1.
- Remove the engine block cap.
- Slowly turn the engine shaft clockwise until it is possible to insert the blocking pin into the engine shaft.
- Insert the blocking tool into the rear of the camshafts.
- Fit the camshaft position sensor disc adjustment tool.
- Remove the cap from the front timing cover.
- Press the chain tensioner and block it with the tool.
- If necessary, loosen the bolt of each camshaft pinion in order to adjust the valve timing position.
- Fit new bolts to the camshaft pinions.
- Tighten the bolt on each camshaft pinion as indicated below:
 - First stroke - 10 Nm.
 - Second stroke - 50 Nm + 60°.
- Tighten the engine shaft pulley bolts to 8 Nm.
- Fit a new central bolt for the engine shaft pulley.
- Tighten the central bolt for the engine shaft pulley.
- Refit the engine block cap. Tightening torque: 50 Nm.
- Refit the cap for the front timing cover.

