



# CASTEX®

## Timing tool set VW Audi Seat Cupra Skoda 1.5 TSI

### C01/0275

**Manufacturer:**

**CASTEX Anna Bednarz**  
ul. Ludwikowo 2C  
85-502 Bydgoszcz

tel. +48 500 616 500  
www.castex.pl



### **Product is intended for professional use.**

Castex is not responsible for improper use of the product and cannot be held liable for damage caused to personnel, property or equipment while using the tool.

Improper use will void the warranty.

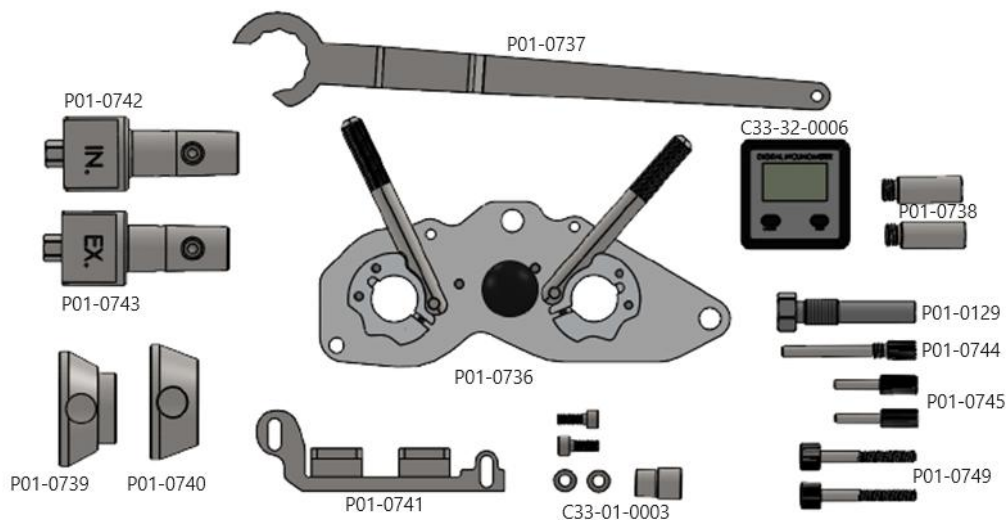
Before using tool, read the instructions carefully. The data provided in the instructions is intended to provide general guidance on the use of specific tool.

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## Set contents

L.P.	Indeks	Opis	Ilość	OEM
1.	P01-0736	Timing tool adaptor	1	VAS 611 007
2.	P01-0738	Spacer sleeve	2	VAS 611 007
3.	P01-0749	M6 pin	2	VAS 611 007
4.	P01-0739	Sleeve with collar (intake)	1	VAS 611 007
5.	P01-0740	Sleeve without collar (exhaust)	1	VAS 611 007
6.	P01-0742	Intake shaft adapter (IN)	1	VAS 611 007
7.	P01-0743	Ehaust shaft adapter (EX)	1	VAS 611 007
8.	P01-0741	Reference beam	1	VAS 611 007
9.	C33-01-003	Mounting screws for P01-0741	2	VAS 611 007
10.	C33-32-006	Inklinometr	1	
11.	P01-0744	Rear Pulley locking pin	1	T10504/1
12.	P01-0129	Crankshaft locking pin	1	T10340
13.	P01-0745	Adapter locking pin	2	
14.	P01-0737	Tensioner roller adjustment pin	1	T10499



**Note: usually when the belt breaks, the engine is damaged, before removing the head, check the tightness of the cylinders!**

Preparing the vehicle for repair work:

- Disconnect the battery ground cable.
- Remove spark plugs.
- Avoid turning the crankshaft and camshafts without the timing belt fitted.
- Turn the motor in the standard direction of rotation unless otherwise indicated in the manual.
- Turn the crankshaft wheel only.
- Pay particular attention to all tightening torques.

## Models description

Manufacturer	Model	Production year
AUDI	A1	From 2018.
	A3	From 2017.
	Q2	From 2018.
	Q3	From 2018.
SEAT	ARONA	2017 to 2021
	ATECA	From 2018.
	IBIZA	2017 to 2021
	LEON	From 2018.
	TARRACO	From 2019.
SKODA	KAMIQ	From 2019.
	KAROQ	From 2017.
	KODIAQ	From 2019.
	OCTAVIA III/IV	From 2017.
	SCALA	From 2019.
	SUPERB III	2017 to 2020
VOLKSWAGEN	ARTEON	2018 to 2020
	GOLF VII/VIII	From 2017.
	PASSAT	From 2018.
	POLO	2017 to 2021
CUPRA	LEON	From 2022.
	FORMENTOR	From 2020.
	ATECA	From 2023.

Engine codes (1.5 TSI)
DADA
DFYA
DHFA
DPCA
DXDB
DACB
DPBE
DPBA
DACA

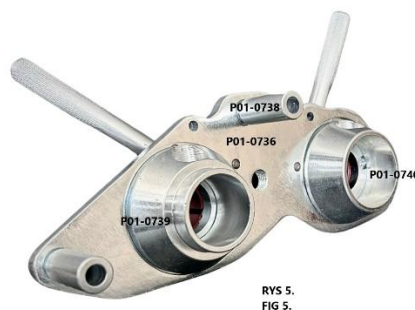
**Note: Hybrid vehicles are equipped with a high-voltage system. When working on such vehicles, special care should be taken to minimize the risk of electric shock. Persons involved in the operation of hybrid vehicles and PHEVs must be trained in accordance with the manufacturer's requirements.**

## NOTE:

- Clean the work area thoroughly before working on the fuel system.
- The engine must be cold.
- The fuel system may be pressurized.
- Bending, twisting, and tensioning should be avoided.
- Protect the timing belt from debris.
- Always attach a new strap after disassembly.
- When replacing the timing belt, the tensioners and pulleys must also be replaced.
- It is recommended to replace the cooling pump after removing the timing belt.
- If the coolant pump has seals or sealing rings, do not use liquid sealants.

## Instaling the timing tool elements

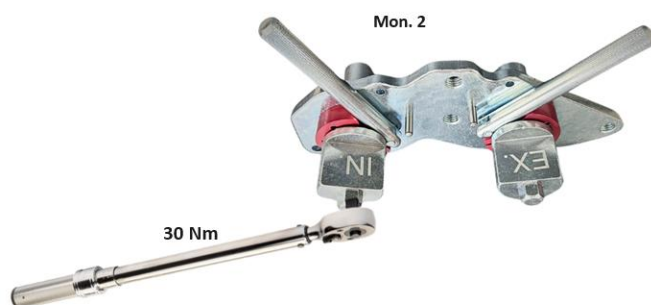
- Assembly timing tool parts no. P01-0736, P01-0749, P01-0739, P01-0740 (mon. 1.)



### Pay special attention to:

**Be sure to check that the clamping force of the lever is adequate. Make sure that the camshaft adapters are fully inserted into the terminals.**

**Apply a force of 30 Nm to the P01-0743 adapter. If the component rotates in the housing, loosen the lever and tighten the screw located at the bottom of the lock. Then apply 30 Nm to the adapter again. In case any of the adapters rotates, tighten the lower screw with more force (mon. 2.).**



## Disassembling

**NOTE: The engine is equipped with variable valve timing. Before removal, mark the camshafts, camshaft pulleys, camshaft adjusters and related components of the camshaft drive system with colored chalk or paint.**

- Raise and support the front of the vehicle.
- Drain the cooling system.
- Disassemble the following:
  - Upper engine cover
  - Lower engine cover
  - Right front wheel
  - Right front wheel arch cover
  - Air Resonator Wire
  - Air filter suction line
  - Air Filter Housing
  - Turbocharger exhaust pipe
  - Magnetic valve

**NOTE: Replacement of the solenoid valve oil seal is necessary. Do the following:**

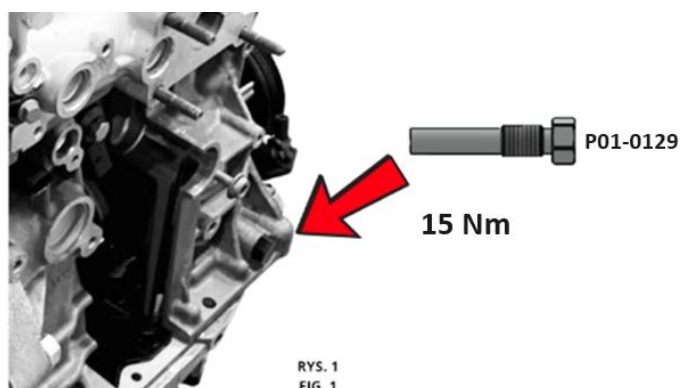
- Disconnect the fuel vapor lines from the fuel vapor extraction tank.
- Disconnect the fuel lines at the partition wall.
- Disconnect the multi-pin connector of the coolant level sensor.
- Remove the coolant expansion tank.
- Disconnect the coolant lines and hose assembly from the water pump drive belt cover.

### Parts to disassembly:

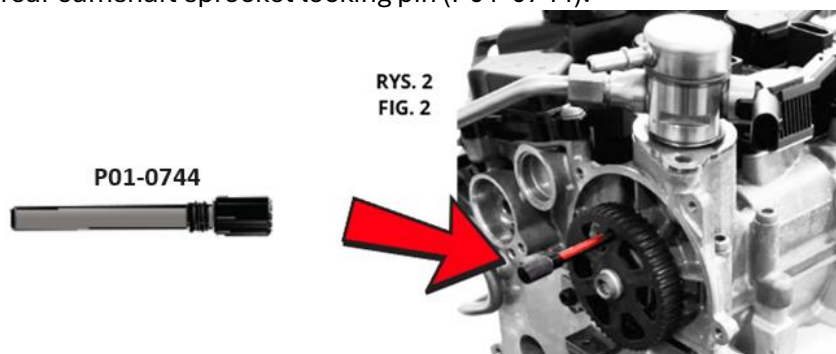
- Top toothed belt cover
- Water pump drive belt cover
- Solenoid valve housing
- Blanking plug on the rear side of the cylinder head
- Exhaust camshaft adjuster cover bolts
- Cylinder block blanking plug

**NOTE: To access the exhaust camshaft adjuster cover bolts, slowly turn the crankshaft clockwise**

- Install the crankshaft locking device. If the locking device cannot be fully inserted: Remove the locking device, rotate the crankshaft 90° clockwise, install the locking device as shown in Figure 1. (max tightening torque 15Nm)

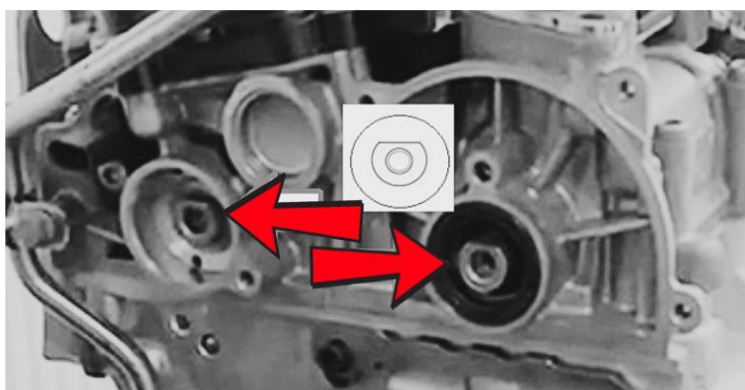


- Turn the crankshaft slowly to the right until the crank arm touches the locking device
- Insert the rear camshaft sprocket locking pin (P01-0744):



#### Disassembly elements:

- Water pump
- Water pump drive belt
- NOTE: Replacing the water pump drive belt is essential!
- Hold the rear timing wheel.
- Elements to be disassembled:
  - Camshaft rear sprocket locking pin
  - Camshaft rear sprocket bolt
  - Rear camshaft sprocket
- The rear end of the intake camshaft and the exhaust camshaft should be in the correct position



RYS. 3  
FIG. 3

**NOTE: crankshaft in TDC position of the first cylinder**

- Remove the drive belt for additional components

**NOTE: If you want to reuse the bar, use chalk to mark the direction of movement on the bar**

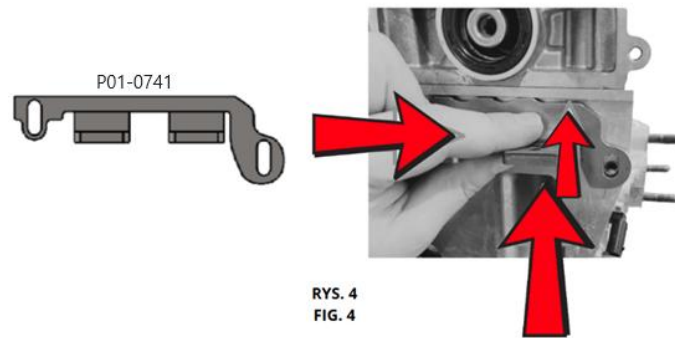
## Installing the C01/0275 timing tool

Install kit C01/0275 on the end of the camshafts, gearbox side.

### Step 1:

Install the inclinometer reference beam:

- Apply the reference beam P01-0741 (Fig. 4.)
- Fasten with screws C33-01-0003



RYS. 4  
FIG. 4

**NOTE: Make sure that the P01-0741 element rests on the lower part of the cylinder head along its entire length and the contact areas are clean. No other element may be between these surfaces**

### Step 2.

Install the previously prepared lock on the engine:

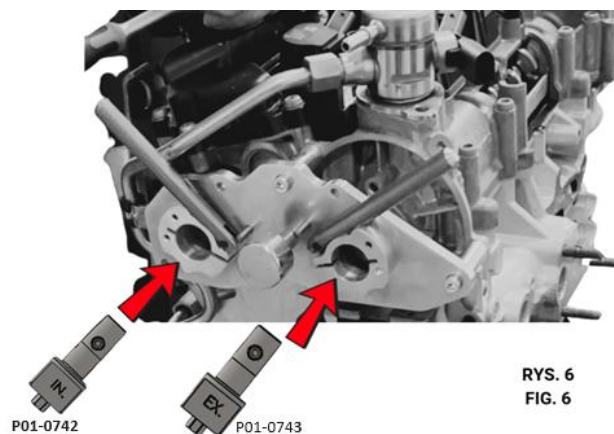
- Lift the lock by the handle located between the shaft adapter holes
- Gently slide the lock onto the shafts from the gearbox side with elements P01-0739 and P01-0740 facing upwards.

### Step 3.

#### Assembly of P01-0742 & P01-0743

**NOTE: When installing the P01-0742 and P01-0743 components, special care must be taken to ensure that the adapters are in the correct place. The ends of the P01-0742 and P01-0743 must engage with the camshafts**

- Install P01-0742 (IN) on the intake shaft (Fig. 6.)
- Install P01-0743 (EX) on the exhaust shaft (Fig. 6.)

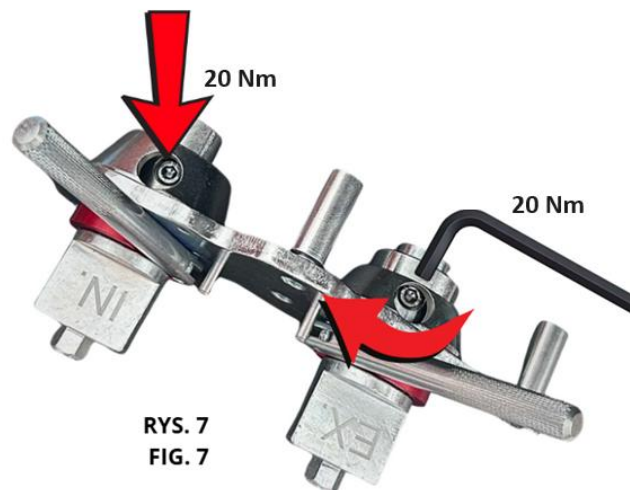


RYS. 6  
FIG. 6

**NOTE: Make sure that adapters P01-0742 and P01-0743 are securely seated and cannot rotate freely.**

## Step 4.

**Verification of adapter clearance** After correctly positioning the P01-0742 and P01-0743 adapters, tighten the clamping screws on both sides with a 6mm Allen key (Fig. 7.) (torque: 20Nm)



## Step 5.

### Inklinometr settings

- Place the inclinometer upside down on the protruding forks of the P01-0741 reference beam (Fig. 8.)
- Wait for the device and reading to stabilize
- Holding the inclinometer toward the reference beam, press the ZERO button to set the inclinometer to 00.0

**The inclinometer must be calibrated each time the lock is used.**



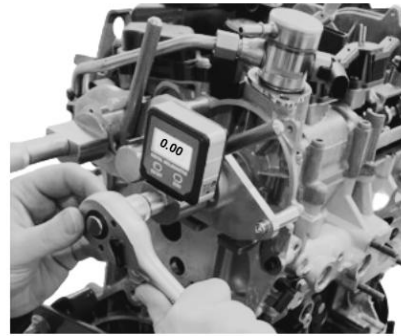
Fig. 8

## Step 6.

### Measuring the angles of the intake and exhaust camshafts

- Position the inclinometer on the flat surface of the intake shaft adapter P01-0742 (correctly up)
- Wait for the device to stabilize, record the measured value
- Place the inclinometer on the flat surface of the outlet shaft adapter P01-0743
- Wait for the device to stabilize, record the measured value
- The above activities are shown in Figure 9.





RYS. 9  
FIG. 9

**NOTE: Record the reading direction:**

- Up arrow = negative angle
- Down arrow = positive angle

**Compare the recorded readings with the vehicle manufacturer's data!**

### Step 7. Locking adapters

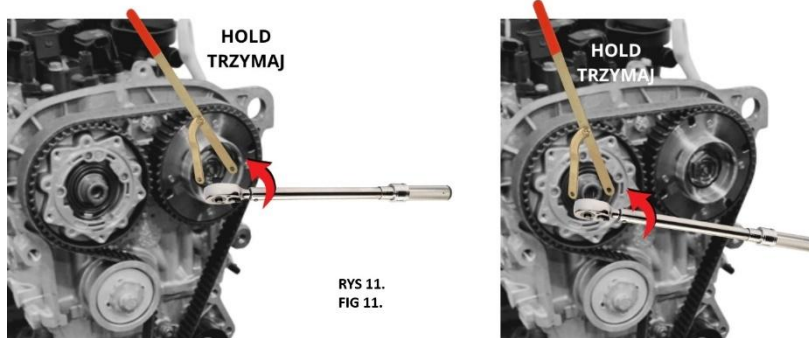
After installing the C01/0275 kit and taking readings, lock the camshaft adapters P01-0742 and P01-0743 as in the photo by locking them with pins P01-0749 and P01-0745



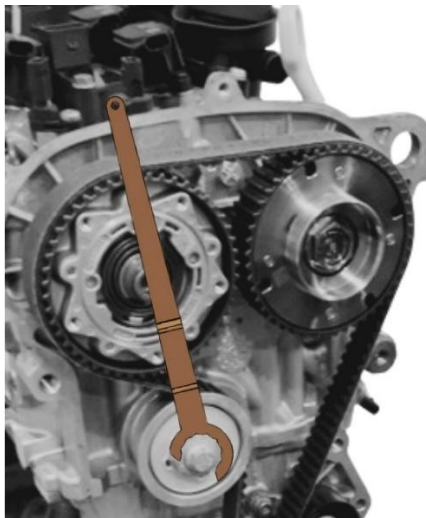
RYS. 10  
FIG. 10

### Step 8. Removing the timing belt

- Hold the crankshaft pulley.
- Loosen the crankshaft pulley bolt.
- Elements to be disassembled:
  - Crankshaft pulley bolt
  - Crankshaft pulley
  - Lower toothed belt cover
- Hold the intake camshaft adjuster (Fig. 11).
- Loosen the intake camshaft adjuster control valve by one turn.
- Hold the exhaust camshaft adjuster (Fig. 11).



- Loosen the exhaust camshaft adjuster bolt by one turn.
- Hold the tension pulley using the P01-0737 tool (Fig.12.)



- Loosen the tension pulley bolt.
- Turn the tension pulley counterclockwise to loosen the belt.
- Remove the timing belt.
- Remove the crankshaft wheel and degrease it

## Assembly

**NOTE: When replacing the tension pulley, support the motor and remove the right motor mount and handle for access**

**Check the condition of the intake camshaft adjuster control valve gasket. If damaged, replace the intake camshaft adjuster control valve.**

### Step 1: Mounting belt on the crankshaft wheel

- The crank arm should be in contact with the locking device P01-0129.
- Install the new camshaft adjuster bolt for the exhaust valves and tighten it by hand.
- Depress the camshaft control valve piston for intake and exhaust valves. The movement of the piston should not exceed 3 mm, and the resistance should be felt. If there is no resistance, the control valve must be replaced.
- Check that the camshaft gears rotate freely.

- Make sure that the tension pulley lever is in the correct slot of the cylinder head.
- Install the crankshaft wheel, making sure that it is properly seated.
- Put a timing belt on the crankshaft wheel.

## Step 2: Mounting the belt on the other timing components

- Install the lower timing belt cover.
- Mount:
  - Crankshaft pulley
  - New crankshaft pulley bolt
- Tighten the crankshaft pulley bolt to 150 Nm and an additional 180°.
- Apply the timing belt in the following order:
  - Guide roller
  - Tension pulley
  - Intake camshaft adjuster
  - Exhaust camshaft adjuster
- Turn the tension pulley clockwise until the indicator is 10 mm to the right of the notch.

## Step 3: Timing belt tension setting

- Use the P01-0737 tool to hold the tension pulley.
- Tighten the tension pulley bolt to 25 Nm.

## Checking the camshaft timing

### Step 1:

- Check that the camshaft set screws are loose.
- Hold the camshaft adjuster for the intake valves.
- Tighten the intake camshaft adjuster control valve to 20 Nm.
- Hold the camshaft adjuster for the exhaust valves.
- Tighten the exhaust camshaft adjuster control valve to 20 Nm.

### Step 2:

- Release both locking levers by removing locking pins P01-0745.
- Remove crankshaft locking device P01-0129.
- Turn the crankshaft two full revolutions, stopping just before returning to TDC.
- Install the crankshaft locking device P01-0129.
- Turn the crankshaft until it rests against P01-0129.
- Check the shaft angles according to steps 5 and 6 of the section "Fitting the timing lock C01/0275".

**To verify the angles, use the manufacturer's data or a workshop encyclopedia.**

### Step 3A:

If the values read are in accordance with the manufacturer's specifications, tighten the camshaft pulleys to 50 Nm and proceed to the "INSTALLATION TO BE CONTINUED" section.

## Step 3B:

If the camshaft timing needs to be adjusted, follow these steps:

- Lock the crankshaft as shown in Figure 10.
- Hold the intake camshaft adjuster.
- Loosen the intake camshaft adjuster screw.
- Place the inclinometer upside down on the reference rod and wait for the device to stabilize.
- While pressing the inclinometer against the reference rod, press the ZERO button to set the inclinometer to 00.0°.
- Place the inclinometer on adapter P01-0742 in the correct position.
- Wait for the device to stabilize.
- Insert a 13 mm socket wrench into the end of the intake camshaft adapter P01-0742.
- While holding the key, unlock the intake camshaft by removing the lever stop pin P01-0745.
- Adjust the position of the camshaft to the angle specified by the manufacturer or in a workshop encyclopedia.
- Lock the adapter with the locking lever.
- Reinsert the lever locking pin P01-0745.
- Repeat the same procedure for the exhaust shaft, remembering the data from the end of step 2.
- After resetting and locking both camshafts, tighten the camshaft pulley mounts to 20 Nm.
- Proceed to step 1 in the "CHECKING THE CAMSHAFT TIMING" section.

## Assembly continue

- Remove the crankshaft locking device.
- Remove the camshaft timing tool.
- Hold the camshaft adjuster for the intake valves.
- Tighten the camshaft adjuster control valve for intake valves to 140 Nm.
- Hold the camshaft adjuster for the exhaust valves.
- Tighten the camshaft adjuster control valve for exhaust valves by an additional 135°.
- Install the camshaft adjuster cover for the exhaust valves using new screws (tightening torque: 7 Nm).

**Note: Replacement of the camshaft adjuster cover gasket for exhaust valves is necessary.**

- Install the new oil seal in the solenoid valve housing.
- Install the solenoid valve housing.
- Screw the blanking plug into the cylinder block.
- Install the following:
  - Rear camshaft sprocket.
  - New camshaft rear sprocket bolt by tightening it by hand.
- Insert the locking pin of the camshaft rear sprocket.
- Hold the rear timing wheel.
- Tighten the camshaft rear sprocket bolt to 20 Nm and an additional 90°.

- Remove the locking pin of the camshaft rear sprocket.
- Fit the new water pump drive belt onto the rear timing wheel.
- Install the water pump and drive belt as a kit.

**Note: The drive belt of the water pump will be tensioned automatically. Check that the water pump pin is correctly aligned. Replacing the water pump housing gasket is essential.**

- Tighten the water pump bolts to 12 Nm.
- Assemble the components in the reverse order of disassembly.
- Top up and bleed the cooling system.