

ContiTech: Expert Tips for Changing Timing Belts

- Detailed instructions for Fiat 500 1.2 I engine code 169 A4.000
- ContiTech shows how to avoid errors when changing belts

Hanover, October 2014. Significant errors are frequently committed when changing the timing belt. To ensure that the belt change operation goes smoothly, the ContiTech Power Transmission Group provides fitters with a detailed installation guide. The ContiTech expert provides a step-by-step explanation of how to change the belt correctly in a Fiat 500.

The manufacturer recommends checking the timing belt every 60,000 km or every two years and, where appropriate, changing the belt every 120,000 km or after five years or, in the case of vehicles driven under harsh operating conditions, after 120,000 km or four years.

The labor time for changing the timing belt is 2.35 hours.

Tip: Replace the tensioning pulley, idlers and water pump at the same time as changing the timing belt.

Fitters need the following special tools for the procedure:

1. Engine support beam cross member OE (1870595000)
2. Support bearing for engine support beam OE (1870650000)
3. Engine support beam longitudinal member OE (1860851003)
4. Bracket(s) for engine support beam OE (1871001300)
5. Crankshaft locking tool OE (2000004500)
6. Camshaft setting tool OE (2000004400)
7. Tensioning tool OE (1860987000)

Preparatory work:

Identify the vehicle using the engine code.

Disconnect the vehicle battery.

Do not turn the crankshaft and camshaft once the timing belt has been removed.

Turn the engine in the normal direction of rotation (clockwise).

Turn the engine ONLY at the crankshaft pulley and not at other pulleys.

Comply with all tightening torques. Jack up and prop the front of the vehicle.

If the water pump is also to be changed, drain the cooling water.

Removal: Remove engine cover, engine compartment underpanel, front right wheel, front right fen-

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der shield, support strut(s) for cross member on body, air intake hose of air filter housing and air filter housing itself, ancillary unit belt, crankshaft pulley; fit engine support beam using tools 1 to 4, remove valve cover, support engine using jack, remove engine mount and engine bracket, remove top and bottom timing belt guard and fit retaining bracket OE 1871001300 for attaching engine support beam.

Removal – camshaft belt:

1. Insert camshaft gauge OE 2000004400 into camshaft (Figs. 1 and 2). To do so, turn crankshaft in direction of engine travel using suitable tool until markings on camshaft (notch) point upwards to 12 o'clock position (Fig. 3, camshaft gauge and notch are shown in red here).

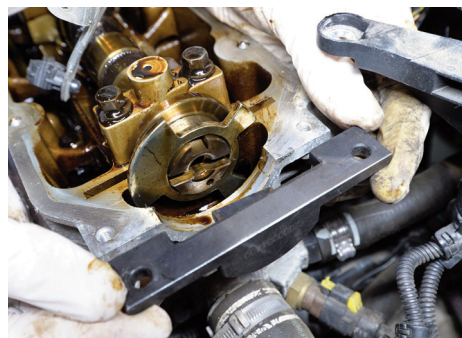


Fig.1

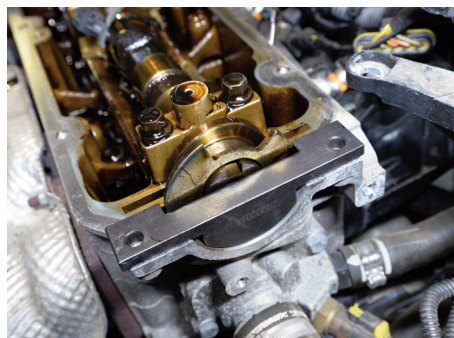


Fig.2

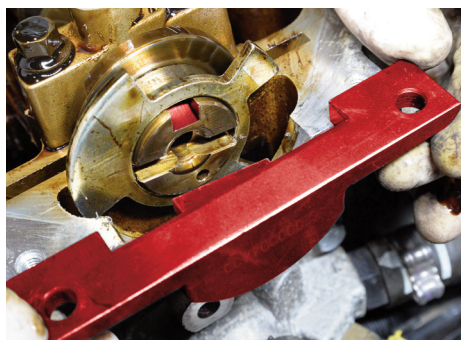


Fig.3

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2. Secure camshaft gauge with two screws (Fig. 4).

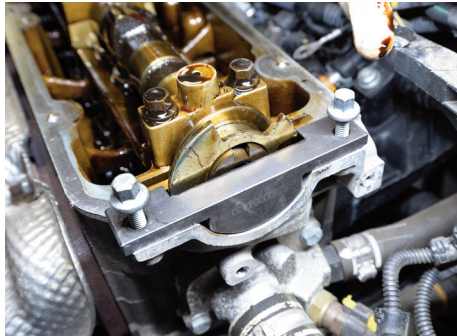


Fig.4

3. Fit locking tool OE 2000004500 for crankshaft to crankshaft pulley (Figs. 5 and 6).



Fig.5



Fig.6

4. Loosen tensioning pulley nut and release tension on tensioning pulley.
5. Remove timing belt.

Installation – camshaft belt:

1. Change tensioning pulley and, if necessary, water pump.

Thoroughly clean and degrease contact face between water pump and engine (Fig. 7). Carefully apply sealing compound paste only to seal surface of water pump (Fig. 8). **Use only amount specified. Excess sealing compound paste often results in leaks with mechanical shaft seals. If sealing compound paste is used when fitting water pump, wait approx. 1 hour with coolant circuit completely drained (curing/vulcanizing time)!**

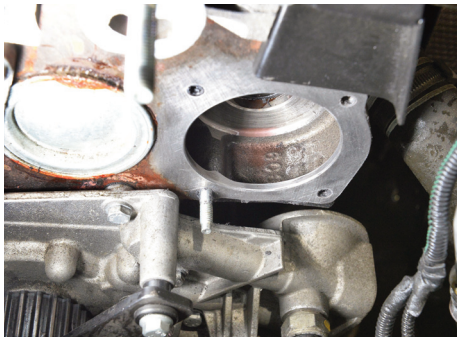


Fig.7



Fig.8

2. Fit timing belt on crankshaft pulley, starting counterclockwise. Timing belt is placed around tensioning pulley as final step. Take care to ensure that timing belt is not kinked during fitting! Timing belt must be tight between pulleys on tight side!
3. Turn tensioning pulley counterclockwise towards stop using tensioning tool OE 1860987000 until tensioning pulley is at maximum adjustment, then tighten tensioning pulley nut (Fig. 9). Timing belt is now tensioned to maximum extent.
4. Remove locking tools from crankshaft and camshaft.
5. Turn crankshaft through two revolutions in direction of engine travel. **Purpose of overtensioning timing belt is to set teeth better in pulleys. This is done to avoid subsequent setting of timing belt during normal operation and resulting reduction in timing belt tension.**
6. Check engine setting. Fit locking tools for crankshaft and camshaft as before.
7. Set tension of tensioning pulley to mark. To do so, loosen tensioning pulley nut. Turn tensioning pulley counterclockwise using tensioning tool OE 1860987000 until pointer is aligned with reference mark (Figs. 9 and 10). Tighten tensioning pulley nut to torque of 25 Nm. Since markings can only be seen from below, use of a small mirror is recommended (Fig. 11).



Fig.9



Fig.10

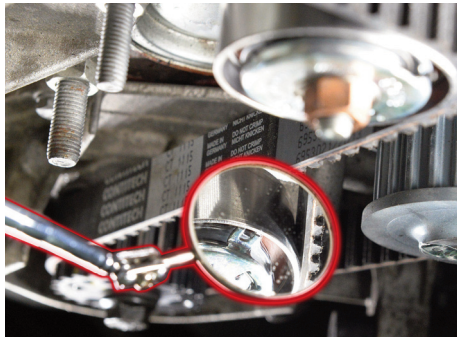


Fig.11

8. Remove locking tools from crankshaft and camshaft.

Turn crankshaft through two revolutions in direction of engine travel.

Check engine setting. Fit locking tools for crankshaft and camshaft as before.

If locking tools cannot be inserted, correct valve timings. Check timing belt tension again. Check tensioning pulley setting (Fig. 12) and reset, if necessary.



Fig.12

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9. Remove locking tools and gauge, then remove holding tool and fit components in reverse order of removal.

10. Fitting: Timing belt guard, crankshaft pulley 25 Nm, ancillary unit belt, engine mount bolts and engine mount, air intake hose of air filter housing and air filter housing itself, engine cover, engine compartment underpanel, front right wheel, fender shield.

11. Record changing of original ContiTech timing belt on sticker supplied (Fig. 13) and stick this in engine compartment.



Fig. 13

Then carry out test run or test drive.

Use coolant to manufacturer's specification, bleed and check for leaks.

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The ContiTech division numbers among the leading suppliers of a host of technical rubber products and is a specialist for plastics technology. The division develops and produces functional parts, components and systems for the automotive industry and other important industries. ContiTech currently has a workforce of approximately 31,400 employees. In 2013 it recorded sales of about €3.9 billion.

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