

# Ford Fiesta

## Timing Belt Replacement

The routine replacement of the timing belt is an essential procedure to avoid failure of the belt and serious engine damage.

However, replacement intervals have been considerably extended over the years due to improvements in belt material and system design. As a result, this routine replacement should be considered as a complete service of the engine belt drive system, not just a replacement of the timing belt itself.

The featured vehicle in this article is a 2013 Ford Fiesta equipped with a 1.5-litre common rail diesel engine, an evolution of the older 1.6 TDCi. Developed in conjunction with PSA, this engine featured a reduction in piston diameter from 75 to 73.5 mm, an aluminium block with cast iron sleeves and an aluminium 8-valve cylinder head equipped with hydraulic tappets. This new diesel engine was later used in many other Ford models, including the B-Max, Courier, EcoSport, Focus, C-Max, Kuga and Mondeo.



Figure 1

Subject to operating conditions, the interval for the timing belt replacement on this featured vehicle is every 200,000 km (125,500 miles) or 120 months, whichever occurs first.

However, this interval should be considered as the maximum range and is a key reason why the complete belt drive system requires inspecting and replacing as necessary.

Before starting any timing belt replacement, it is essential that the vehicle manufacturer's repair procedures are precisely followed. The engine should be at an ambient temperature and any special tools that are needed should be acquired in advance.

### Timing Belt Replacement Procedure

With the vehicle in the workshop, open the bonnet and disconnect the battery.

Raise the vehicle then remove the lower engine cover and drain the coolant from the radiator.

Lower the vehicle and remove the coolant expansion tank to gain access to the engine mounting and upper timing belt cover.

Supporting the engine, remove the engine mounting and upper timing belt cover.

Remove the right front wheel and wheel arch liner in order to access and remove the auxiliary drive belt. Then, unplug the crankshaft sensor.

Rotate the crankshaft slowly in a clockwise direction, then insert the locking pin for the crankshaft, making sure it is fully inserted into the flywheel (Fig. 2).



Figure 2

With the engine locked into position, unbolt the crankshaft pulley retaining bolt. Remove the torsion vibration damper pulley (TVD) and inspect the rubber surface for any signs of hardening caused by ageing as this will eventually result in the failure of the damper.

Then refit the retaining bolt to the crankshaft sprocket, taking extra care with the crankshaft position sensor ring.



Figure 3

**Note:** this part is extremely sensitive to any cleaning or handling and may become faulty, leading to an incorrect sensor signal. This results in an engine management malfunction with a crank sensor signal fault being logged as fault code P0336. It is advised that this component, which is part of the timing belt kit, be changed every time it is removed to save time and possible issues. (Fig.3)

Next, remove the auxiliary belt tensioner and the lower timing belt cover, then rotate the crankshaft until piston No. 1 is at top dead centre (TDC). Install the timing pegs into the crankshaft, camshaft and injection pump. (Fig.4)

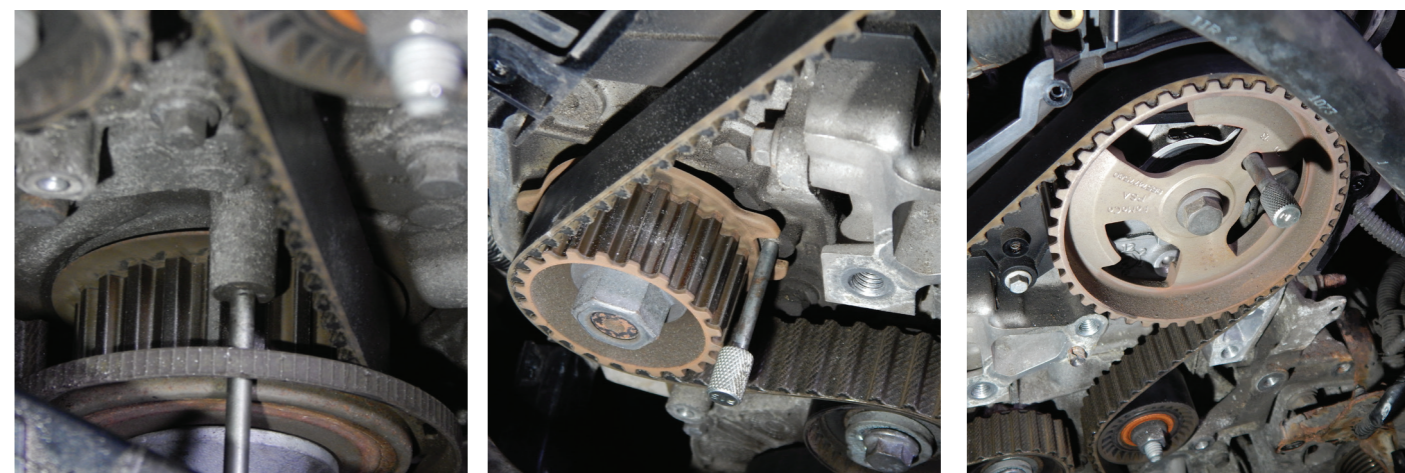


Figure 4

Slacken the belt tensioner and remove the belt. Then, remove the tensioner, idler pulley and water pump.

With all engine belt drive system components removed, inspect for any underlying faults that need to be rectified before reassembly. The following parts (during this repair) were required: 173114 Timing Belt Kit with water pump; 176080 Auxiliary Belt Kit with tensioner, and a new TVD pulley which includes a new bolt 33798 and G12+ coolant 19402.

After ensuring all mating surfaces are clean, install the water pump - followed by the timing belt idler and tensioner pulleys. Lastly, fit the timing belt. To do so, first centre the key within the keyway of the crankshaft pulley, then fit the belt in a clockwise direction starting with the camshaft pulley. Using an Allen key, adjust the tensioner anti-clockwise until the pointer is in position (Fig. 5), then tighten the tensioner nut.

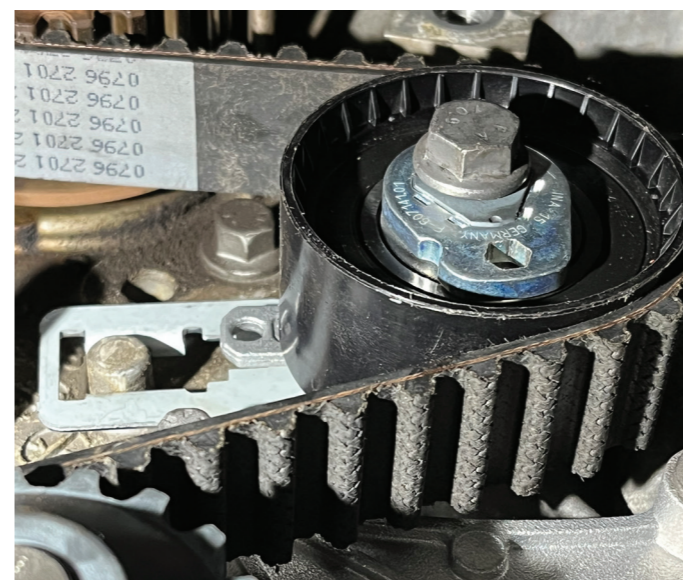


Figure 5

Temporarily refit the crankshaft bolt and tighten. Remove the timing pins and rotate the crankshaft slowly clockwise six times. Reinsert the timing pins and locking tool before rechecking the tensioner. If all timing pins align and the tensioner is set correctly, remove the crankshaft bolt and refit the lower timing belt cover and crankshaft sensor. Fit the TVD pulley and tighten the new stretch bolt to 35 Nm, then a further 190°.

Install the new auxiliary belt and tensioner, which is recommended at the same time when changing the timing belt. Refit all other components in reverse order before refilling the engine with fresh coolant. Reconnect the battery, start the engine and ensure it is running correctly. Check there are no fluid leaks before road testing the vehicle.

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