90040620
Diesel Engine V6 Setting/Locking Tool Kit

Applications:
LAND ROVER, JAGUAR & PSA (Citroen/ Peugeot) 2.7 V6 (TDV6) Quad Cam Diesel engines in

LAND ROVER
Range Rover Sport Discovery 3

JAGUAR
S-Type XJ Series

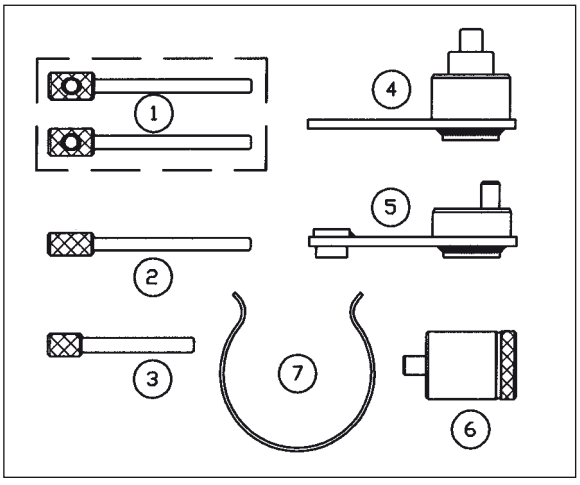
PSA – Citroen/Peugeot
CITROEN
C6

PEUGEOT
407/Coupe 607

276DT / DT17TED4 (UHZ) (TDV6) engines

Additional Tools required
43012860 Camshaft Sprocket Holding Tool

IMPORTANT: Always refer to the vehicle manufacturer's service instructions, or proprietary manual, to establish the current procedures and data. Product Information Sets detail applications and use of the tools with any general instructions provided as a guide only.



Kit contents/spares

Item	Part Number	Description
1	4965L1	Camshaft Locking Pins (Pair)
2	4965L2	Camshaft Timing Checking Pin
3	4965C9	Coolant Pump Locking Pin (PSA)
4	4966	Flywheel Locking Tool (Auto Transmission)
5	4967	Flywheel Locking Tool (Manual Transmission
6	4968	Flywheel Locking Tool (PSA)
7	4569	Timing Belt Retaining Clip
-		Case + Insert

90040620 V6 Diesel Engine Setting/Locking Tool Kit

Comprises 4965L1 Camshaft Locking Pins (Pair)
4965L2 Camshaft Timing Checking Pin (L-R/Jaguar)
4965C9 Coolant Pump Locking Pin (PSA)
4966 Flywheel Locking Tool (Automatic Transmission L-R/Jaguar)
4967 Flywheel Locking Tool (Manual Transmission L-R/Jaguar)
4968 Flywheel Locking Tool (PSA)
4569 Timing Belt Retaining Clip

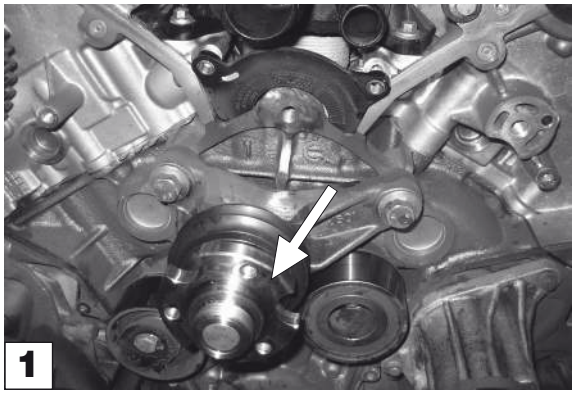
The TDV6 diesel engines fitted in Land Rover, Jaguar and PSA models are 'Quad Cam', Common Rail diesels with a front timing belt driving the exhaust camshafts from the crankshaft. Chains connect the inlet camshaft to the exhaust camshaft in each bank. A separate belt at the rear of the engine, operates the HP pump from the camshaft (Note: the HP pump does not require timing).

The timing belt replacement procedure is basically the same for all vehicles. However it should be noted that two Flywheel Locking Tools are required for Land Rover and Jaguar (one for Automatic and one for Manual transmissions) and that PSA models also require a different Flywheel Tool from the ones used on L-R and Jaguar.

The Camshaft Locking Pins are common to all these applications, but additionally, a Timing Check Pin is used on Land Rover and Jaguar timing procedures.

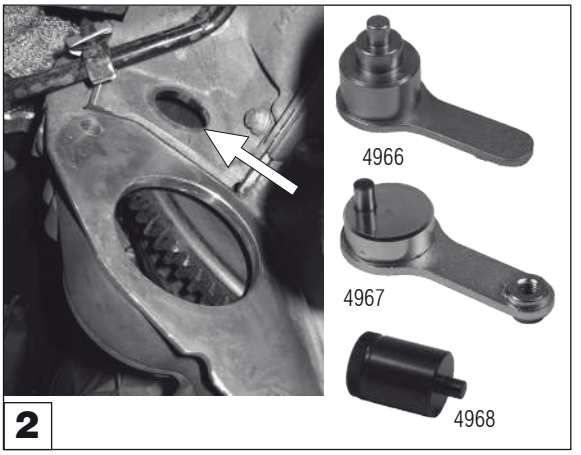
It will be necessary to remove / dismantle a number of components to gain access to the timing belt area, including the need to drain the coolant, remove intercooler, air filter and engine under-shield. Remove right-hand road wheel and splash shield. Support the engine and remove upper right-hand engine mounting/support.

Remove the viscous fan, crankshaft pulley, auxiliary belt/tensioner, and coolant pump pulley.



NOTE: PSA applications use 4965C9 Coolant Pump Locking Pin when removing the Pulley. Align one of the three holes in the pulley with the hole in the coolant pump body – insert 4965C9 Locking Pin to fix position, and remove the pulley.

Remove timing belt covers and starter motor.



4966, 4967 & 4968 Flywheel Locking Tools

Remove the timing hole grommet from the engine block to allow for insertion of the appropriate Flywheel Locking Tool

4966 – Automatic Transmission – Land Rover / Jaguar

4967 – Manual Transmission – Land Rover / Jaguar

4968 – PSA (Citroen / Peugeot)

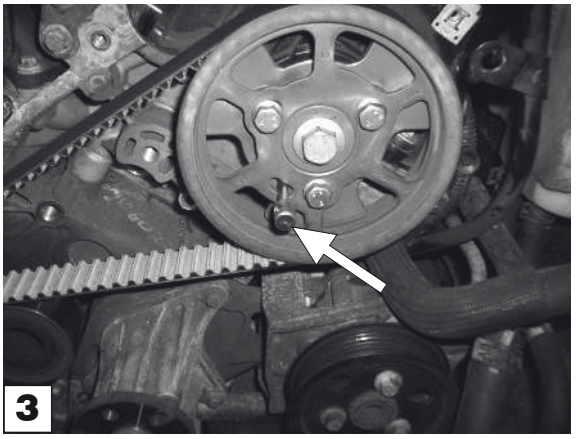
Turn the crankshaft **clockwise** to align the datum hole in the flywheel within the timing hole.

Check that the timing holes in the camshaft sprockets are aligned with the datum holes behind them. If they are not aligned, turn the crankshaft one turn **clockwise**.

Insert the appropriate Flywheel Locking Tool into the timing hole so that the 'pin' of the tool locates into the datum hole in the flywheel in order to 'lock' the flywheel in 'timed' position.

NOTE: 4967 Flywheel Locking Pin is retained in correct orientation by fixing the Tool to the starter motor bolt position.

Camshaft timing



4965L1 Camshaft Locking Pins (Pair)

Insert the 4965L1 Locking Pins into the timing holes in the exhaust camshaft sprockets and though into the rear datum holes to 'lock' the camshafts.

WARNING: 4965L1 Pins MUST NOT be used to counter-hold the sprockets when releasing / tightening the sprocket bolts. Use a suitable Sprocket Holding Tool – 43012860.

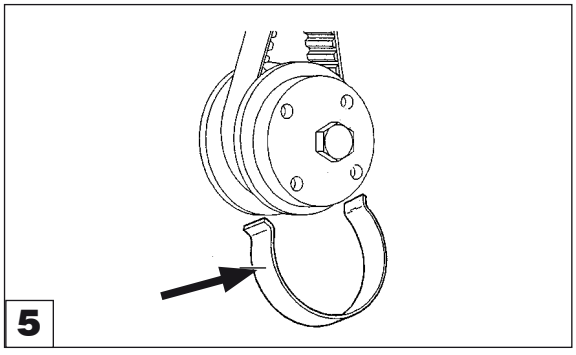
Counter-hold sprockets with 43012860 Holding Tool whilst slackening the 3 x bolts on each sprocket.

Remove and discard the belt tensioner pulley/bolt and the timing belt. Check that the idler pulleys and coolant pump rotate freely and check for any oil and coolant leaks.

New Timing Belt Installation

Install a new belt tensioner and bolt **NOTE**: Tighten tensioner bolt finger-tight only at this stage.

Turn both camshaft sprockets **fully clockwise** in their slotted holes.



Fit a new timing belt in the following sequence:-

Crankshaft Gear – retain belt in place on the gear using 4569 Belt Retaining Clip.

Idler Pulley

Left-hand Camshaft Sprocket – ensure sprocket remains in the **clockwise** position.

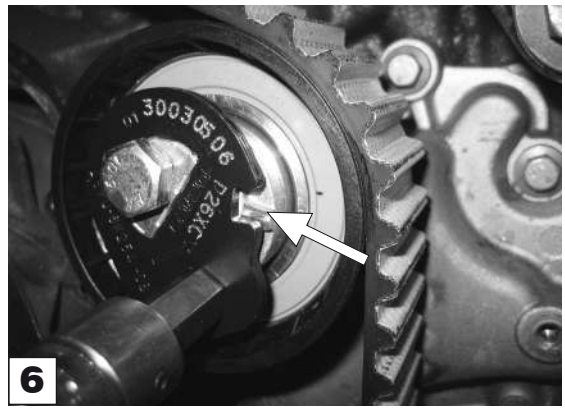
Idler Pulley

Right-hand Camshaft Sprocket - ensure sprocket remains in the **clockwise** position.

Belt Tensioner.

If necessary, turn the camshaft sprockets slightly **anti-clockwise** to fit belt (no more than one tooth). Ensure the timing belt is taut between sprockets.

Remove 4569 Retaining Clip.



Using an allen key, turn the belt tensioner **anti-clockwise** to a position where the 'window' is aligned with the 'groove'.

Tighten the tensioner pulley bolt.

Unscrew the camshaft sprocket bolts (3 on each sprocket) to visually check that they are not at the end of the slotted holes.

Counter-hold the camshaft sprockets using a suitable Holding Tool and tighten the sprocket bolts (3 on each sprocket).

Remove the 4965L1 Camshaft Locking Pins and Flywheel Locking Tool.

Rotate the crankshaft slowly, by hand, 2 complete turns, in normal direction of rotation, and again align the datum hole in the flywheel into the timing hole.

Insert the Flywheel Locking Tool and the Camshaft Locking Pins to confirm that the correct timing of the engine has been established.

IMPORTANT: PSA detail use of the 4965L1 Locking Pins inserted into the left-hand and right-hand sprockets in order to check the camshaft timing positions are correct.

Land Rover and Jaguar use one of the 4965L1 Pins in the left-hand Sprocket (when viewed from the sprockets) and the 4965L2 Timing Check Pin in the right-hand sprocket to determine that timing is correct.

If Locking Pins do not fit, repeat the timing belt replacement procedure.