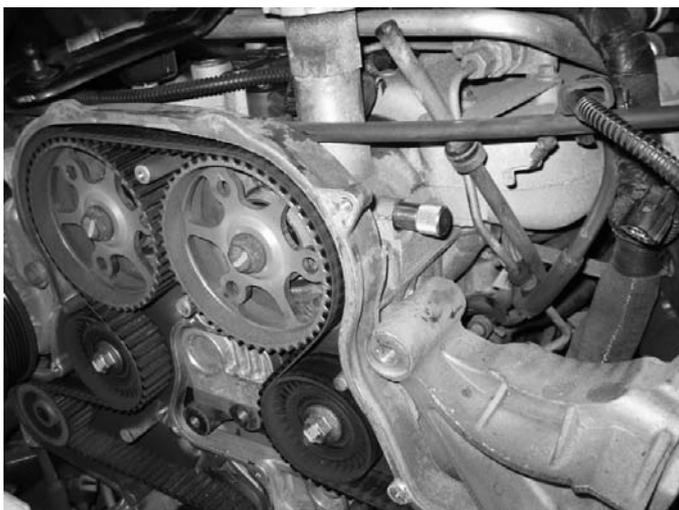


AST4945A Diesel Engine Setting/Locking Tool Kit



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.



Applications:

CHRYSLER 2.5CRD and 2.8CRD Diesel engines in

CHRYSLER

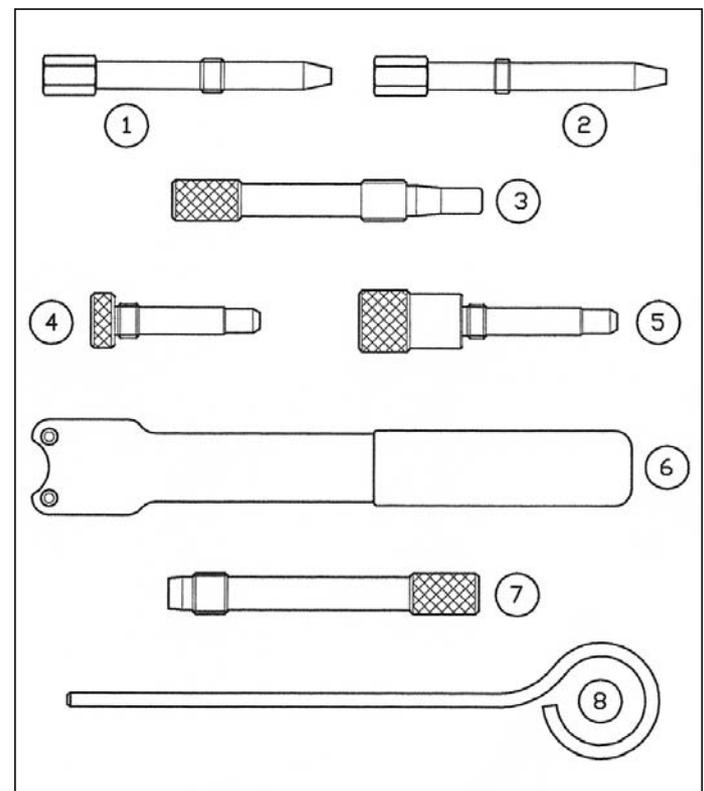
Voyager
Jeep Cherokee

Grand Voyager

LDV

Maxus

R2516C(5) / R2516L / R2816K(4)



Kit Contents/Spares

Item	Part Number	Description
1	AST4928	Flywheel Locking Pin (belt replacement)
2	AST4929	Flywheel Locking Pin (belt replacement)
3	AST4947	Flywheel Locking Pin (belt replacement)
4	AST4946CH1	Camshaft Locking Pin (Exhaust)
5	AST4946CH2	Camshaft Locking Pin (Inlet)
6	AST4444	Tensioner Adjuster
7	AST4948	Flywheel Locking Pin (Balancer shafts position)
8	AST4949	Balancer Shaft Locking Pin
-	AST4945A-84	Case + Insert

The 2.5CRD and 2.8CRD power units are VM engines, and are twin camshaft, direct injection, common rail diesels.

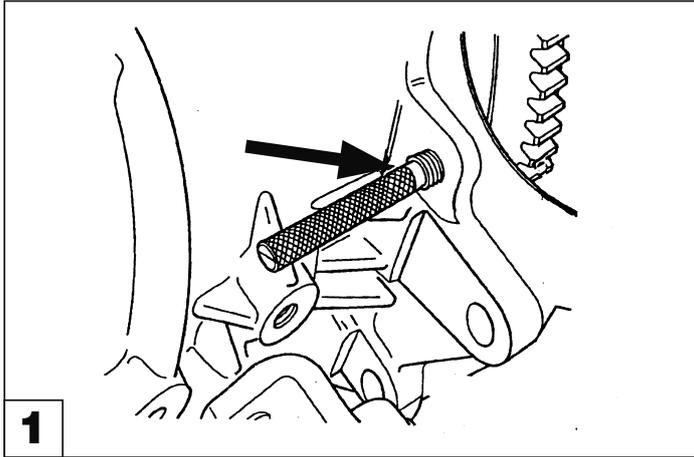
Timing Belt Replacement

It will be necessary to remove the timing belt cover and air filter assembly.

Support the engine and remove the right-hand splashguard and engine undersheid.

Remove the right-hand engine mounting, the auxiliary belt and its tensioner and the starter motor.

Remove the crankshaft pulley.



AST4928, AST4929 and AST4947 Flywheel Locking Pins

Flywheel Locking Pin Applications:- (Timing Belt Replacement)

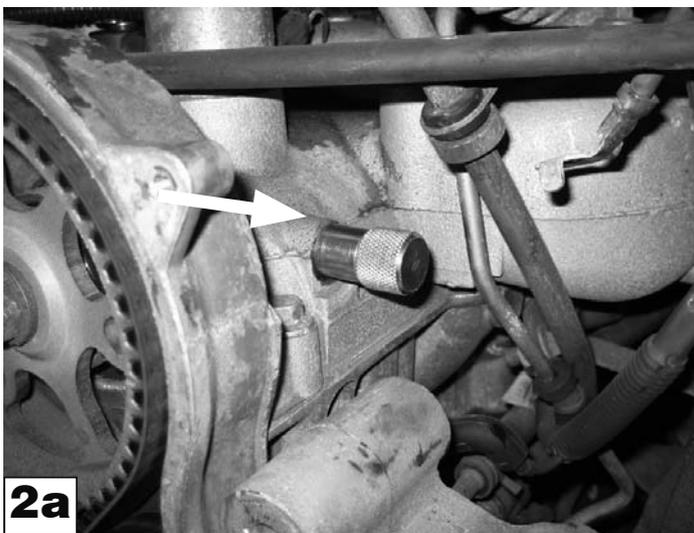
AST4928 – 2.5CRD Jeep Cherokee

AST4929 – 2.8CRD Jeep Cherokee

AST4947 – 2.5CRD and 2.8CRD Voyager & Grand Voyager
and 2.5CRD LDV Maxus

Turn the engine **clockwise** until the timing mark on the crankshaft gear is at the 3-o'clock position – **engine at 90° A.T.D.C.** and 'lock' the flywheel using the appropriate Locking Pin.

IMPORTANT: Ensure that the Flywheel Locking Pin has fully entered into the flywheel.



Inlet camshaft



Exhaust camshaft

AST4946CH1 (Exhaust) and AST4946CH2 (Inlet) Camshaft Locking Pins

NOTE: AST4946CH1 Locking Pin is smaller than CH2 in order to avoid obstructions around its entry hole in the cylinder head cover. Ensure that Pin CH1 is used for locking the exhaust camshaft.

Remove the blanking plugs in the cylinder head cover and insert AST4946CH1 into the exhaust camshaft and AST4946CH2 into the inlet camshaft.

WARNING: Take care not to over-tighten the Camshaft Locking Pins. There are only 3 threads in the cylinder head cover where these Pins enter and over-tightening could 'strip' these threads.

NOTE: If the Camshaft Locking Pins will not locate into the camshafts, remove the Flywheel Locking Pin and rotate the engine 360°. Re-fit the Flywheel Pin and insert the Camshaft Locking Pins.

Check that the fuel pump timing mark is aligned with the mark on the back cover.

Slacken the camshaft sprocket bolts whilst counter-holding the sprockets with a suitable Sprocket Holding Tool, such as AST4844.

Undo the belt tensioner bolt and move the tensioner pulley away from the belt and remove the timing belt.

Fitting the new belt

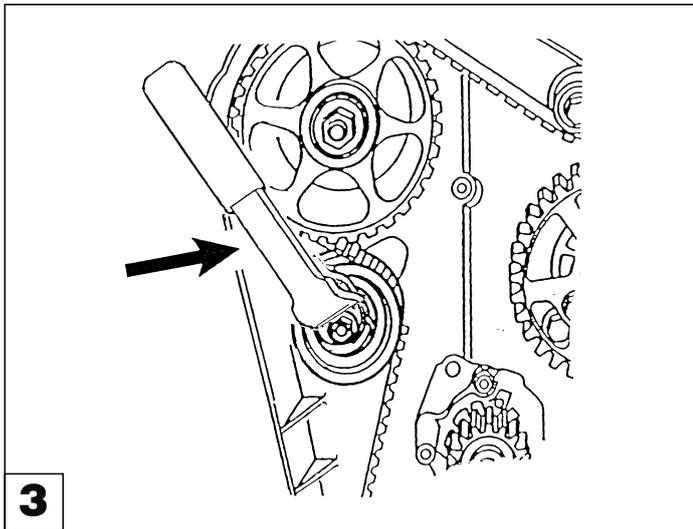
Check that the Flywheel and Camshaft Locking Pins are correctly inserted.

Fit new bolts in the camshaft sprockets and tighten to finger-tight only.

Check that the fuel pump timing marks are aligned.

Fit the new belt onto the crankshaft gear and then in an **anti-clockwise** direction fit to fuel pump, belt guide, inlet camshaft sprocket, exhaust camshaft sprocket, belt guide, coolant pump and belt tensioner.

Using a suitable Sprocket Holding Tool, turn the inlet camshaft sprocket slightly **anti-clockwise**, to remove slack in the timing belt.



AST4444 Belt Tensioner Adjuster

Fit AST4444 Tensioner Adjuster into the two holes in the tensioner pulley and turn it clockwise until the 'notch' on the pointer is aligned with the dowel pin, and tighten the pulley bolt.

Counter-hold the camshaft sprockets with a suitable Sprocket Holding Tool and tighten each of the sprocket bolts to 108 Nm.

Remove the Flywheel and Camshaft Locking Pins.

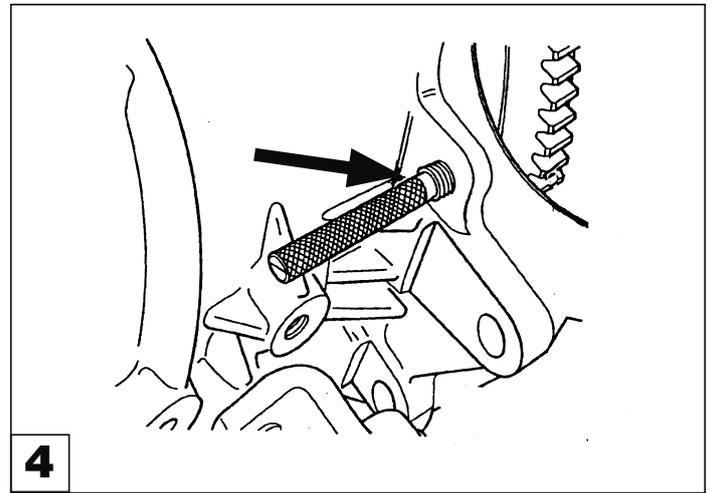
Check the engine timing by making a small paint mark on the timing belt and adjacent cover.

Rotate the crankshaft **clockwise** until the mark returns to its original position, and insert the appropriate Flywheel Locking Pin.

Check that the CH1 and CH2 Camshaft Locking Pins will enter and that the tensioner pointer is in the correct position.

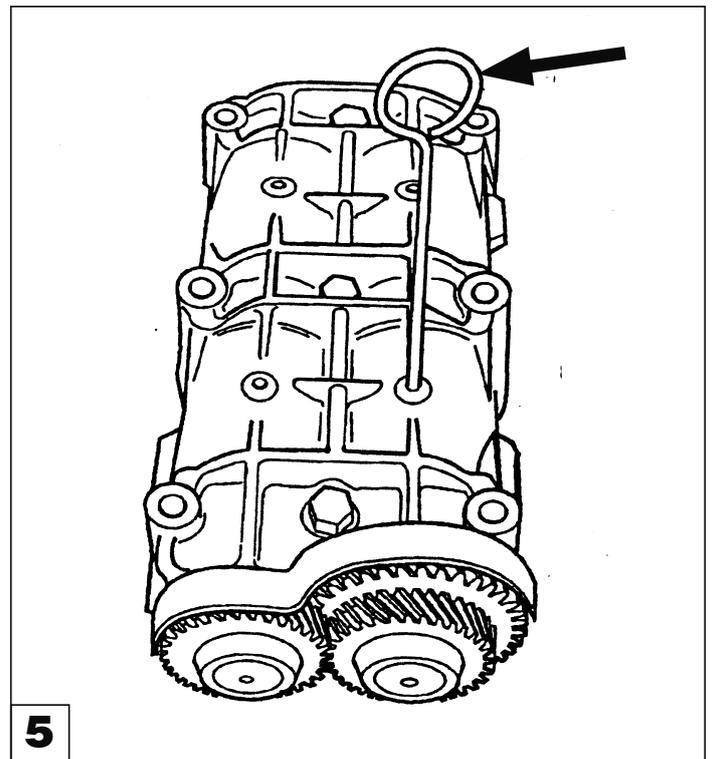
Balancer Shafts – 2.5CRD Voyager / Grand Voyager

The balancer shafts are housed in an aluminium carrier, mounted to the engine block.



AST4948 Flywheel Locking Pin (Balancer shaft)

If the balancer shaft assembly has been removed, No. 1 cylinder must be positioned at TDC and AST4948 Flywheel Locking Pin inserted to 'lock' the flywheel, before the assembly can be installed.



AST4949 Balancer Shaft Locking Pin

Whilst the balancer shaft assembly is out of the engine, AST4949 Locking Pin can be inserted to ensure that the balancer shaft and crankshaft timing is correct after assembly.

