



SUMAX

**Automotive Chain Drive
System Manufacturer**





1.5L BlueHDi PSA
DV5 Common rail Diesel
Sumax Solutions

PSA Groupe 1.5L BlueHDi - Introduction



The Euro-6, common rail **powertrain 1.5L BlueHDi** is co-developed by PSA group and Ford and is based in 1.6L BlueHDi launched on the market in 1998.

This engine is an **inline-4 turbo diesel** with a **power output ranging from 75 to 130 horsepower**. According to the manufacturer, it can **reduce pollutant emission by 4% to 6%** compared to the original 1.6L version

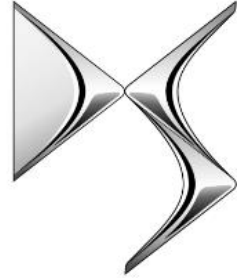
With the aim to pursuing scope economies, this engine is **widely used on different models**, inside and outside PSA group brands.

In last months, **several issues** emerged with this engine, with **distribution chain breakage as one of the most impactful**

PSA Groupe 1.5L BlueHDi – Vehicle Applications



CITROËN



DS AUTOMOBILES



O P E L



TOYOTA

- C3 III
- C3 Aircross
- C4 III
- C4 Cactus
- C4 SpaceTourer
- C5 Aircros
- Berlingo III,
- Berlingo III Van
- Spacetourer
- Jumpy

- DS3 Crossback
- DS4 II
- DS7 Crossback

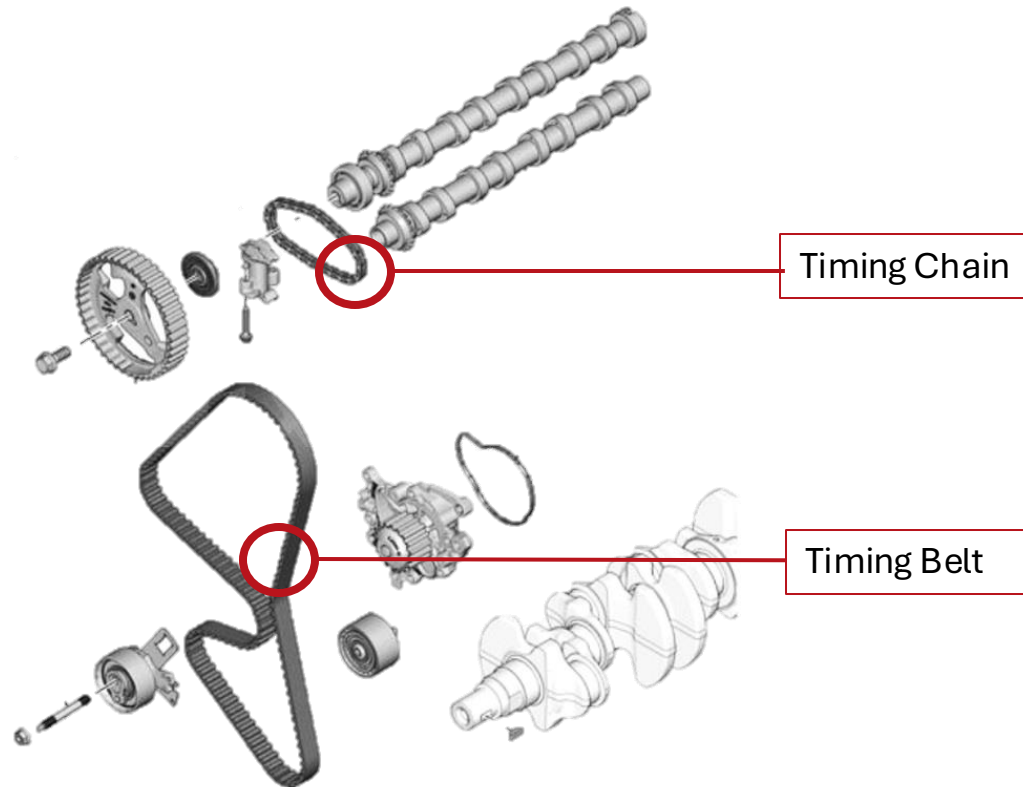
- 208 II
- 2008 II
- 308 II and III
- 508 II
- 3008 II
- 5008 II
- Rifter
- Partner
- Expert

- Corsa
- Mokka
- Crossland
- Grandland
- Combo
- Combo Cargo
- Zafira
- Vivaro

- Proace
- Proace City
- Proace City Verso
- Proace Verso

PSA Groupe 1.5L BlueHDi – Distribution Chain Issues

The 1.5L BlueHDi diesel engine suffered several issue on its components; in this paper, the focus is on **timing chain problems**.



The engine design presents both a **timing belt and a timing chain**.

The issue on distribution chain comes from a **cylinder head unconformity** which may cause a serious mechanical fault.

The effects include **stretch and, in worst scenario, failure of the chain** linking the camshafts well before the expected life cycle of 150,000 km.

Two **symptoms** related to the chain:

- **Excessive chatter noise suggesting the wear of the chain**
- **Engine turn off due to chain**

PSA Groupe 1.5L BlueHDi – Solutions



7mm pitch chain



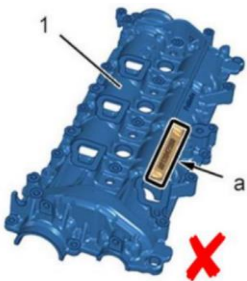
8mm pitch chain



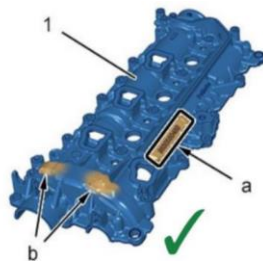
7mm adapted camshaft



8mm adapted camshaft



7mm adapted cylinder head



8mm adapted cylinder head

In an official note, PSA group informed the audience that **from January 2023 introduced a more robust 8mm chain** to be implemented on this powertrain, which **replaces the previous faulty 7mm chain**.

This update **prevents the chain breakage** and, therefore, the damages to camshafts and sprockets as well as the risk of engine failure.



The chain upgrade implies also a **modification of both the camshafts and of rocker cover**.

Sumax solution includes the supply of the 8mm chain as well as the adapted components to its customers facing requests from the market.

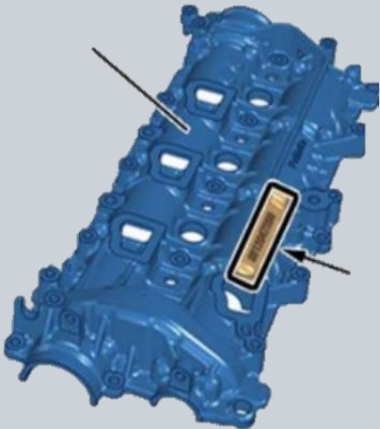
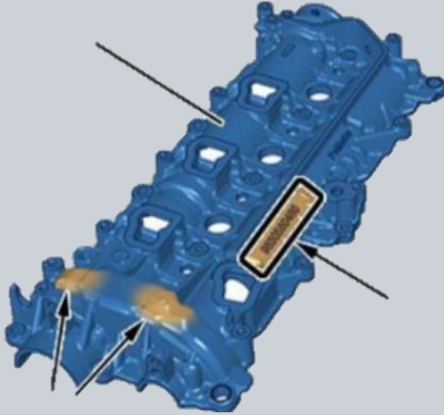
PSA Groupe 1.5L BlueHDi – SUMAX solution: TIMING CHAIN KIT

Kit ID number	TK1472-2 (7mm)	TK2584 (8mm)
		
Main differences	44 section, 7mm pitch	42 section, 8mm pitch
OE Ref.	TC1654 9826028980;3556998 TN1998 9823954880;3553732 OS1278 9823920080;9811694080;9813867680 FB2035 9644862280	TC2123 9830146880 TN2233 9830147280 OS1278 9823920080; 9811694080;9813867680 FB2035 9644862280

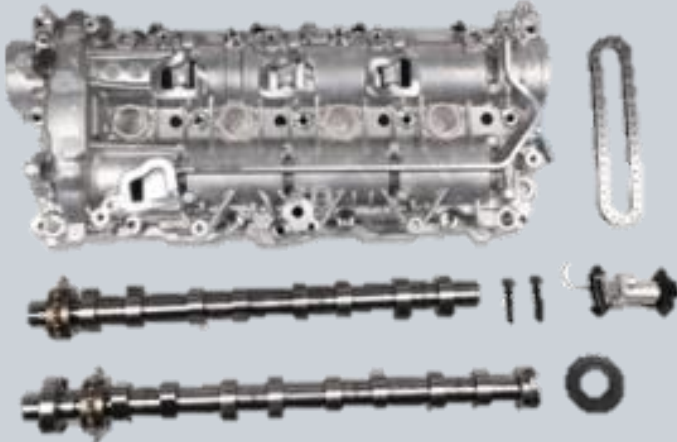
PSA Groupe 1.5L BlueHDi – SUMAX solution: CAMSHAFTS

Component	CAMSHAFTS	
		
Main differences	Adapts to 7mm pitch chain	Adapts to 8mm pitch chain
OE Ref.	9825017880,9825013780	1638159880

PSA Groupe 1.5L BlueHDi – SUMAX solution: CYLINDER HEAD

Component	CYLINDER HEAD	
		
Main differences	Adapts to 7mm pitch chain	Adapts to 8mm pitch chain
SUMAX Ref.	CH3003	CH3004
OE Ref.	9812647280	9830580480

PSA Groupe 1.5L BlueHDi – SUMAX solution: FULL KIT

Component	TK2584-1
	
Main differences	Adapts to 8mm pitch chain
SUMAX Ref.	TK2584-1
OE Ref.	1638159880

SUMAX

Timing is Everything