

SUMAX

PSA 1.5L BlueHDi

A focus on the DV5 engine



www.sumax-auto.com



PSA 1.5L BlueHDi DV5

A focus on the engine

The engine

The PSA 1.5L Blue HDi is a modern diesel powerplant developed by the PSA group as a success to the widely used DV6 1.6L HDi, launched by Ford in the market in 1998.

It is an inline-4 turbo diesel engine, with a power output ranging from 75 to 130 horsepower. This engine is widely implemented on different models, inside and outside PSA group brands – for example across Peugeot, Citroën, DS Automobiles, Opel/Vauxhall and Ford.

Key improvements from DV6 to DV5

The engine undergone to several modifications that made it more reliable than the old DV6.

Here's some corrective actions:

- **Emission control**
 - **Integrated Selective Catalytic Reduction (SCR)** from the start, rather than retrofitting it later
 - **Better Nox control using AdBlue**, and a Diesel Particulate Filter positioned closer to the turbo for faster light-off
- **Weight and Efficiency**
 - Lighter aluminum block and cylinder head
 - Reduced internal friction
 - Better fuel economy and CO2 emissions
- **Turbo & Cooling**
 - Modern variable geometry turbo improves low-end torque and fuel efficiency
 - Enhanced cooling system
- **NVH**
 - Quieter operation due to updated fuel injectors and better insulation
- **Thermal Management**
 - Dual circuit cooling
 - Improved combustion chamber design for optimized heat management and combustion.

Common problems

Even if DV5 was adapted and became more reliable, some major issues have emerged:

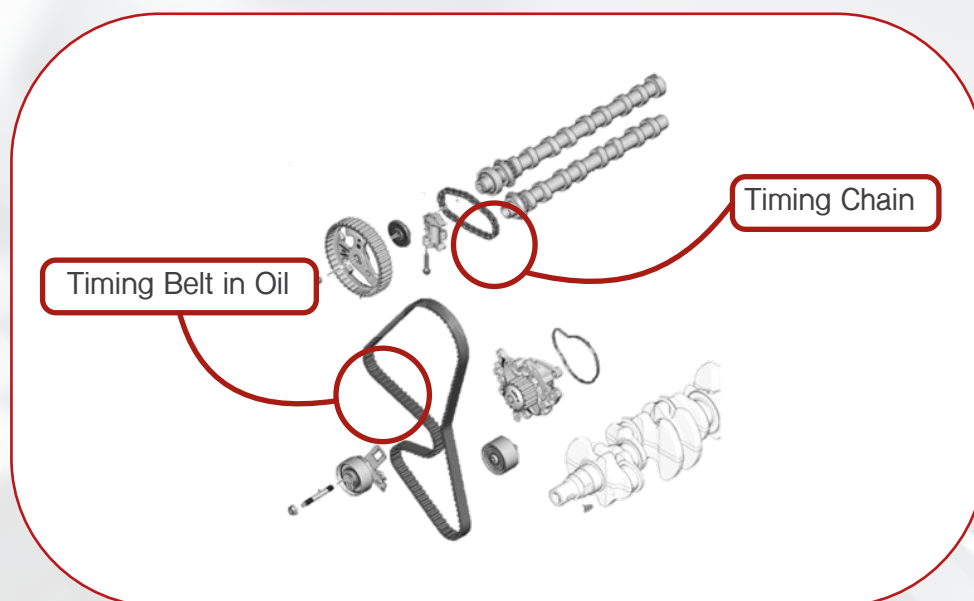
- **EGR Valve and DPF Clogging**
 - Frequent **short trips** can lead to **DPF blockage** and **EGR fouling** due to insufficient regen cycles
 - More prevalent in urban driving environments
- **AdBlue System Issue**
 - **Nox sensors** or **AdBlue pump failures** can trigger warning lights and limpo mode.
 - Software updates often resolve these, but **hardware faults can be costly**.
- **Timing Belt in Oil**
 - The **wet timing belt** should last longer, but early units saw **premature wear** when incorrect oil types were used
 - Regular oil changes with **correct spec low-SAPS oil (PSA B71 2010)** are crucial.
- **Turbo Oil Feed Issues**
 - Although improved, **turbo oil starvation** can still occur if oil maintenance is neglected
 - Affects long-term durability and may require turbo replacement
- **Injector Sealing and Leaks**
 - Some cases of **injector blow-by** or carbon built-up around the injectors
- **Water Pump and Thermostat Housing Leaks**
 - Less frequent, but **coolant leaks** have been reported in some models, usually related to plastic housing degradation.

With this focus, we want to give a close up to the timing chain issue.

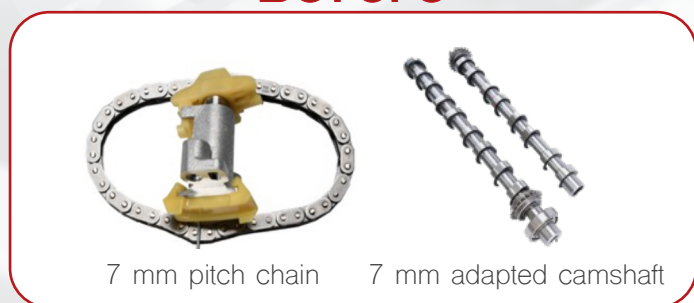


Let's have a look at it!





Before

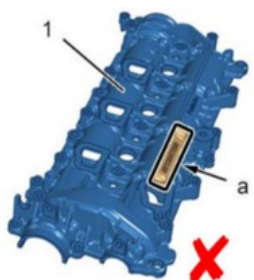


PSA engines are equipped with Timing Belt in Oil for the distribution, while a **small Timing Chain** is used to connect the camshafts and make them work.

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, failuer of the chain** linking the camshafts well before the expected life cycle of 150.000km.

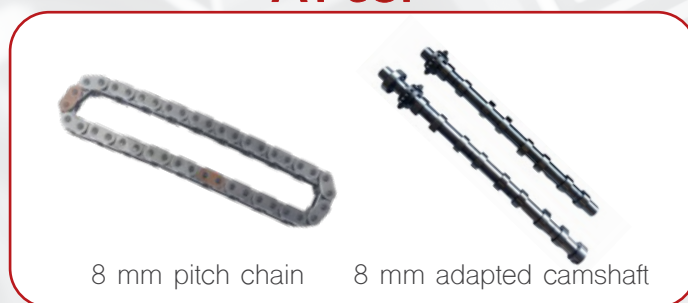
This cylinder head



Two symptoms related to the chain are:

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

After

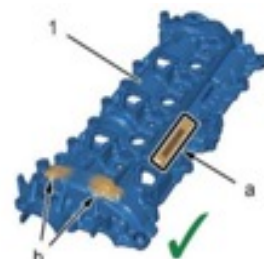


At SUMAX, our R&D department have worked hard to develop the optimized Timing Chain kit, in order to forget the same issues of the past.

What we did

- Improved design of **cylinder head** to avoid frictions
- Adoptions of more **robust 8mm chain** applicable to the **new engine** with improved design of cylinder head
- Production process improvement for the **7mm pitch chain** used in old design engine
 - Seamless sleeve
 - Aluminum Nitriding coating technology
- New version of camshaft for both old and new engine design

The new one

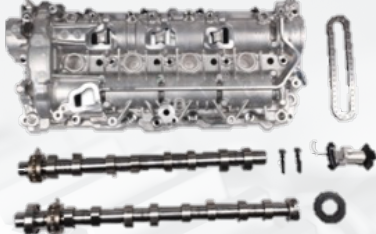




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Technical recap

Technical informations recap

SUMAX KIT ID NUMBER	TK1472 (7mm pitch chain)	TK2584 (8mm pitch chain)
Picture		
Main Differences	44 section, 7mm pitch	42 section, 8mm pitch
	Improved camshafts design Improved pin coating	Improved camshafts and cylinder head design

Old engine design: improvements

SUMAX KIT ID NUMBER	TK1472 (7mm pitch chain)
Chain	Sumax reference: TC1654
Tensioner	Sumax reference: TN1998
Bolts	Sumax reference: FB2035
Oil Seal	Sumax reference: OS1278
Improvements and additions vs previous version of the same kit	
Chain	Seamless sleeve Aluminum nitriding pin coating technology
Camshafts	Updated design Sumax reference: CS1219 (EX), CS1220 (IN)

New engine design: TK2584 Series

SUMAX KIT ID NUMBER	TK2584-1 (8mm pitch chain) - most comprehensive upgrade
Chain	Sumax reference: TC2123
Tensioner	Sumax reference: TN2233
Bolts	Sumax reference: FB2035
Oil Seal	Sumax reference: OS1278
Camshafts	Sumax reference: CS1221 (exhaust) Sumax reference: CS1222 (intake)
Cylinder head	Sumax reference: CH3004



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Vehicle Application list



CAR BRAND	CAR MODEL	FROM - TO	CC	ENGINE CODE
CITROËN	C3 AIRCROSS II 1.5 BlueHDi 100	2018.08-	1.5L	DV5RD
CITROËN	C3 AIRCROSS II 1.5 BlueHDi 120	2018.08-	1.5L	DV5RC
CITROËN	C3 AIRCROSS II 1.5 BlueHDi 110	2020.10-	1.5L	DV5RCE
CITROËN	C3 / C3 ORIGIN III 1.5 BlueHDi 100	2018.05-	1.5L	DV5RD, DV5RCF
CITROËN	C4 III 1.5 BlueHDi 130	2020.10	1.5L	DV5RC
CITROËN	C4 III 1.5 BlueHDi 110	2020.12-	1.5L	DV5RCE
CITROËN	C4 X 1.5 BlueHDi 130	2022.09-	1.5L	DV5RC
CITROËN	C4 CACTUS 1.5 BlueHDi 100	2018.06-	1.5L	DV5RD
CITROËN	C4 CACTUS 1.5 BlueHDi 120	2018.09-	1.5L	DV5RC
CITROËN	C4 SPACETOURER 1.5 BlueHDi 130	2018.05-	1.5L	DV5RC
CITROËN	GRAND C4 SPACETOURER 1.5 BlueHDi 130	2018.05-	1.5L	DV5RC
CITROËN	C5 AIRCROSS 1.5 BlueHDi 130	2018.11-	1.5L	DV5RC
CITROËN	C-ELYSEE 1.5 BlueHDi 100	2018.05-	1.5L	DV5RD, DV5RCF
CITROËN	BERLINGO 1.5 BlueHDi 130	2018.06-	1.5L	DV5RC
CITROËN	BERLINGO 1.5 BlueHDi 100	2018.06-	1.5L	DV5RD, DV5RCF
CITROËN	BERLINGO 1.5 BlueHDi 75	2018.06-	1.5L	DV5RE
DS AUTOMOBILES	DS 3/DS 3 CROSSBACK 1.5 BlueHDi 100	2018.10-2022.12	1.5L	DV5RD
DS AUTOMOBILES	DS 3/DS 3 CROSSBACK 1.5 BlueHDi 130	2018.10-	1.5L	DV5RC
DS AUTOMOBILES	DS 3/DS 3 CROSSBACK 1.5 BlueHDi 110	2021.01-2022.12	1.5L	DV5RCE
DS AUTOMOBILES	DS 4 II 1.5 BlueHDi 130	2021.10-	1.5L	DV5RC
DS AUTOMOBILES	DS 7 1.5 BlueHDi 130	2017.09-	1.5L	DV5RC
DS AUTOMOBILES	DS 7 Crossback 1.5 BlueHDi 130	2022.09-	1.5L	DV5RC
TOYOTA	PROACE CITY VERSO MPV 1.5 D-4D 100	2019.10-	1.5L	DV5RD,DV5RCF
TOYOTA	PROACE CITY VERSO MPV 1.5 D-4D 130	2019.10-	1.5L	DV5RC
OPEL	ASTRA L 1.5 Turbo D	2021.10-	1.5L	DV5RC
OPEL	ASTRA L Sports Tourer 1.5 CDTi	2021.10-	1.5L	DV5RC
OPEL	COMBO E Tour/Life 1.5	2018.06-	1.5L	DV5RE





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OPEL	COMBO E Tour/Life 1.5	2018.06-	1.5L	DV5RD, DV5RCF
OPEL	COMBO E Tour/Life 1.5	2018.06-	1.5L	DV5RC
OPEL	CORSA F 1.5	2019.07-	1.5L	DV5RD, DV5RCF
OPEL	CROSSLAND X/CROSSLAND 1.5	2020.10-	1.5L	DV5RCE
OPEL	CROSSLAND X/CROSSLAND 1.5 Turbo D	2018.06-	1.5L	DV5RD
OPEL	CROSSLAND X/CROSSLAND 1.5 Turbo D	2018.08-	1.5L	DV5RC
OPEL	GRANDLAND/GRANDLAND X 1.5 Turbo D	2018.04-	1.5L	DV5RC
OPEL	GRANDLAND/GRANDLAND X 1.5 Turbo D	2018.06-2021.07	1.5L	DV5RD
OPEL	MOKKA 1.5	2020.10-	1.5L	DV5RCE
PEUGEOT	208 I 1.5 BlueHDi 100	2018.05-2019.12	1.5L	DV5RD
PEUGEOT	208 II 1.5 BlueHDi 100	2019.06-	1.5L	DV5RD, DV5RCF
PEUGEOT	208 II 1.5 BlueHDi 130	2019.09-	1.5L	DV5RC
PEUGEOT	208 I 1.5 BlueHDi 100	2018.05-	1.5L	DV5RD
PEUGEOT	208 I 1.5 BlueHDi 120	2018.05-	1.5L	DV5RC
PEUGEOT	208 II 1.5 BlueHDi 100	2019.08-	1.5L	DV5RD
PEUGEOT	208 II 1.5 BlueHDi 110	2021.01-	1.5L	DV5RCE
PEUGEOT	208 II 1.5 BlueHDi 130	2019.08-	1.5L	DV5RC
PEUGEOT	308 II 1.5 BlueHDi 100	2018.05-2021.06	1.5L	DRV5RD
PEUGEOT	308 II 1.5 BlueHDi 130	2017.06-2021.06	1.5L	DV5RC
PEUGEOT	308 III 1.5 BlueHDi 130	2021.07-	1.5L	DV5RC
PEUGEOT	308 SW II 1.5 BlueHDi 100	2018.04-2021.06	1.5L	DRV5RD
PEUGEOT	308 SW II 1.5 BlueHDi 130	2017.06-2021.06	1.5L	DV5RC
PEUGEOT	308 SW III 1.5 BlueHDi 130	2021.07-	1.5L	DV5RC
PEUGEOT	3008 II SUV 1.5 BlueHDi 130	2018.02-	1.5L	DV5RC
PEUGEOT	301 1.5 BlueHDi 100	2018.05-	1.5L	DV5RD
PEUGEOT	508 II 1.5 BlueHDi 130	2018.10-	1.5L	DV5RC
PEUGEOT	508 SW II 1.5 BlueHDi 130	2018.09-	1.5L	DV5RC
PEUGEOT	5008 II 1.5 BlueHDi 130	2018.02-	1.5L	DV5RC



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Vehicle Application list



CAR BRAND	CAR MODEL	FROM - TO	CC	ENGINE CODE
PEUGEOT	RIFTER 1.5 BlueHDi 100	2018.09-	1.5L	DV5RD, DV5RCF
PEUGEOT	RIFTER 1.5 BlueHDi 130	2018.09-	1.5L	DV5RC
PEUGEOT	RIFTER 1.5 BlueHDi 75	2018.09-	1.5L	DV5RE
FORD	FOCUS IV 1.5 EcoBlue	2018.01-	1.5L	Z2DA
FORD	FOCUS IV 1.5 EcoBlue	2018.01-	1.5L	ZTDB, ZTDA
FORD	FOCUS IV Turnier 1.5 EcoBlue	2018.09-	1.5L	Z2DA
FORD	FOCUS IV 1.5 EcoBlue	2022.08-	1.5L	Y9DA
FORD	TRANSIT CONNECT MPV 1.5 EcoBlue	2015.05-	1.5L	ZTGA
FORD	TRANSIT CONNECT MPV 1.5 EcoBlue	2018.05-	1.5L	Z2GA
FORD	TRANSIT CONNECT MPV 1.5 EcoBlue	2018.05-	1.5L	BEGA
FORD	KUGA III 1.5 EcoBlue	2019.07-	1.5L	ZTDA
FORD	ECOSPORT/4x4 1.5 TDCi EcoBlue	2017.11-	1.5L	ZTJA, ZTJB, ZTJC
FORD	ECOSPORT 1.5 TDCi EcoBlue	2019.11-	1.5L	ZTJD
FORD	ECOSPORT 1.5 TDCi EcoBlue	2017.11-	1.5L	Z2JA





SUMAX
Timing Is Everything