LASER®

Part No. 9581

Instructions

Engine Timing Master Kit

for JLR AJ300 Petrol & Diesel

MADE IN SHEFFIELD

50 Year Warranty



LASER 50 Established 1976 YEARS

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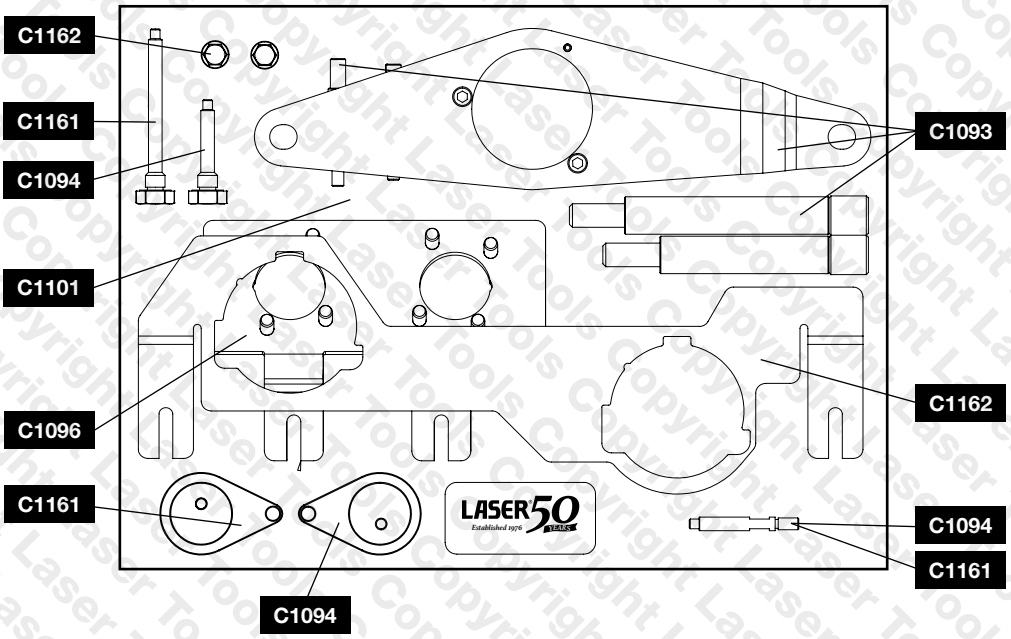
Introduction

Celebrating 50 years of Laser Tools, the 9581 kit brings together Laser 9131 & 9539 for use on JLR 3.0L petrol and diesel engines. Supplied in LD33 foam tool organiser tray that can also be combined together with other kits from our 50th Anniversary range and all kept in our new modular toolbox. Covered by the Laser Tools special 50-year warranty (see website for details).

- **Applications include:** Defender (from 2019), Range Rover (from 2019), Range Rover Sport (from 2019), Range Rover Velar (2020) & Jaguar F-Pace (2020 - 2024).
- **Engine codes:** 3.0L Diesel DT306 (AJ20D60), DT306 & AJ20D6H.
- Equivalent to OEM JLR-303-1656, JLR-303-1657, JLR-303-1658, JLR-303-1659, JLR-303-1670, JLR-303-1714 & JLR-303-1679.
- For supplementary tools please see Laser Part No. 9579 (Supplementary Tool Kit for JLR 50th Anniversary). Presented in a LD33 foam tray (400 x 290 x 45mm), convenient for user storage and limiting packaging waste. Sized to fit directly into Laser Tools premium stackable storage system, Part No. 9283 (4 drawer) or Part No. 9284 (2 drawer).

Made in Sheffield. As part of Laser Tools 50th Anniversary, this tool kit is offered with a 50-year limited warranty. For full details, please visit our website.

Components



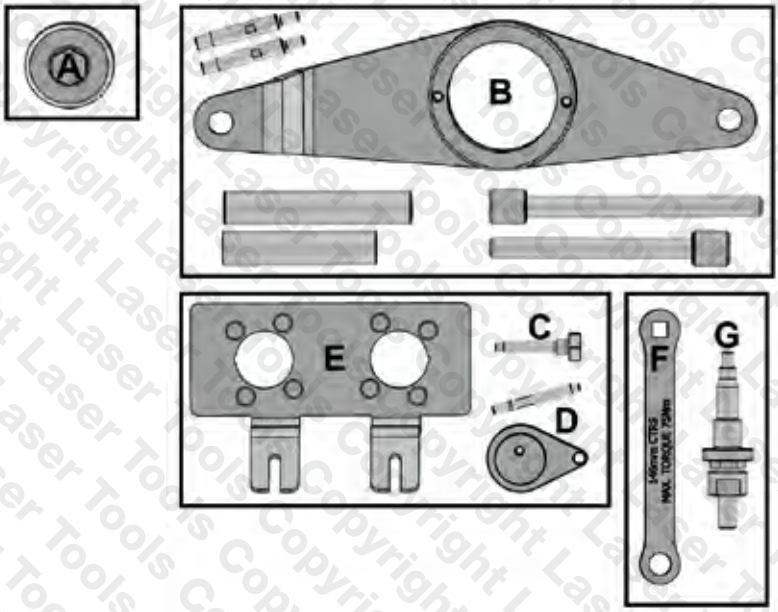
9131 Engine Timing Kit
for JLR 3.0 Diesel

Description

The Laser 9131 timing tool kit has been specially developed to allow the 2020-on 3.0lt diesel engines from Jaguar Land Rover (JLR) to be locked in their timed position during timing chain replacement or timing checks.

- Applications include: Defender (from 2020), Range Rover (from 2020), Range Rover Sport (from 2020), Range Rover Velar (from 2020) & Jaguar F-Pace (from 2020).
- Engine applications include: 3.0L D, DT306, AJ20D6 & DT306.
- Kit includes: cam & crankshaft holding tools. For Fuel Pump alignment tools see Laser 9157.
- Equivalent to OEM: JLR-303-1656, JLR-303-1659, JLR-303-1658, JLR-303-1670, JLR-303-1714 & JLR-303-1679.
- For 2.0L AJ200 applications please see Laser Part No. 7430 (Diesel) & 8507 (Petrol). Made in Sheffield.

Kit List



Item	Comp. No.	Description	OEM.
A	C1092	Crankshaft Pulley Turning Tool	JLR-303-1656
B	C1093	Crankshaft Pulley Locking Tool	JLR-303-1659
C	C1094	Inlet Camshaft Locking Tool	JLR-303-1658
D		Exhaust Camshaft Locking Tool	
E	C1096	Camshaft Pulley Locking Tool	JLR-303-1670
F	C1097	High-pressure Fuel Pump Sprocket Torque Spanner	JLR-303-1714
G	C1098	High-pressure Fuel Pump Spindle Locking Tool	JLR-303-1679

NOTE:
Item **A** can be found in the 9579 Supplementary Tool Kit for JLR.

Items **F** & **G** can be found in either the 9579 Supplementary Tool Kit for JLR or 9157 Fuel Pump Alignment Tool.

Applications

Make	Model	Year
LAND ROVER	Defender	From 2020
	Range Rover	From 2020
	Range Rover Sport	From 2020
	Range Rover Velar	From 2020
JAGUAR	F-Pace	From 2020

Engine Codes
3.0D
DT306 (AJ20D6)
DT306

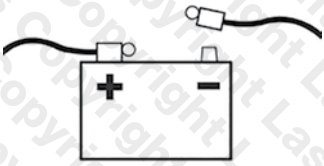
Instructions for use

The following instructions are for guidance only. Please refer to OEM derived data such as the vehicles manufacturers own data or Autodata.

The use of this engine timing tool kit is purely down to the user's discretion and The Tool Connection Ltd cannot be held responsible for any damage caused whatsoever.







The vehicles fitted with this engine may be Hybrid or Mild-Hybrid and use high-voltage electricity that may present a risk of serious injuries. ALWAYS follow manufacturer's instructions when working with Hybrid vehicles.

Basic component use: for full instructions please refer to OEM or Autodata instructions.

Instructions

NOTE: Due to the timing chains being at the rear of the engine, removal and fitting of the timing chains requires the removal of the transmission and flywheel/drive plate.

- Turning the crankshaft in the normal direction of rotation, align the crankshaft pulley timing marks with the arrow on the timing chest case.
- Align the engine camshaft timing marks.
- Align fuel pump sprocket marks.

Component A = Crankshaft turning Tool.

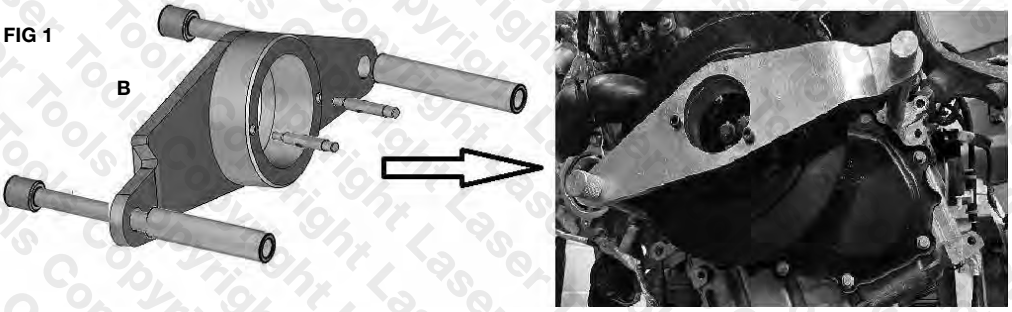
Used to turn the crankshaft.

Component B = Crankshaft Pulley Locking Tool:

Used to lock and hold the crankshaft pulley in place.

- Working on the front of the engine, fit the crankshaft pulley locking tool as shown in Figure 1.

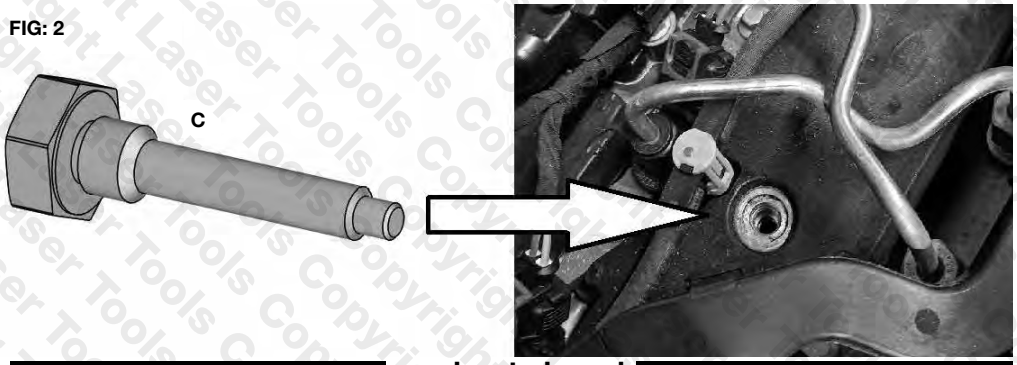
FIG 1



Component C = Inlet Camshaft locking pin:

- Working from the top of the engine remove the blanking plug on top of the camshaft cover and fit component (C) through the hole in the camshaft as shown in Figure 2.

FIG: 2

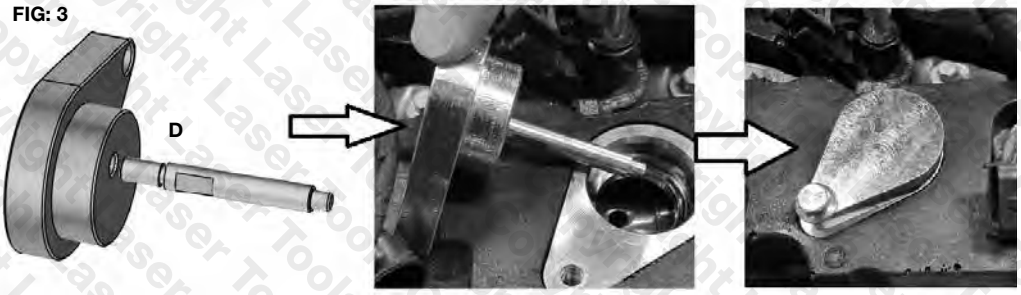


Instructions

Component D = Exhaust Camshaft locking pin:

- Assemble component (D) as shown in Figure 3.
- Remove the oil filler tube and fit component (D) as shown in Figure 3.

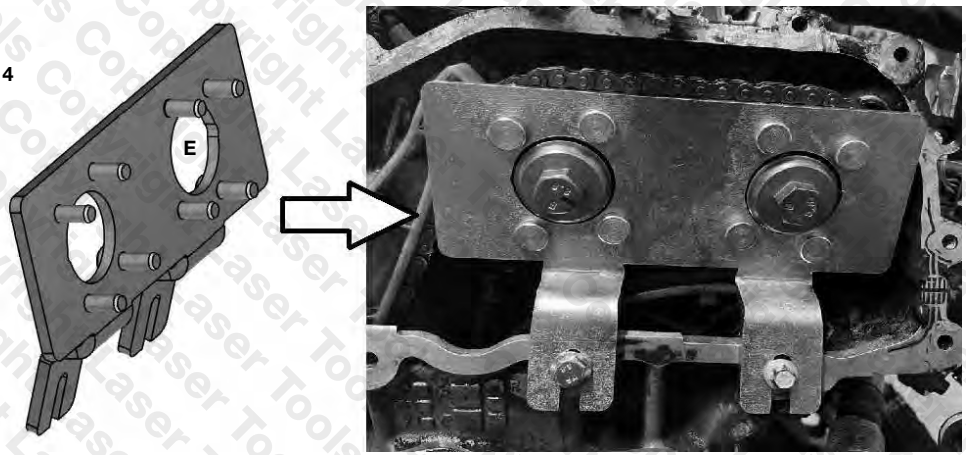
FIG: 3



Component E = Camshaft Pulley Locking Tool:

- With the crankshaft pulley locking tool and camshaft locking pin all correctly fitted remove the secondary timing chain tensioner.
- Fit component E as shown in Figure 4.

FIG: 4

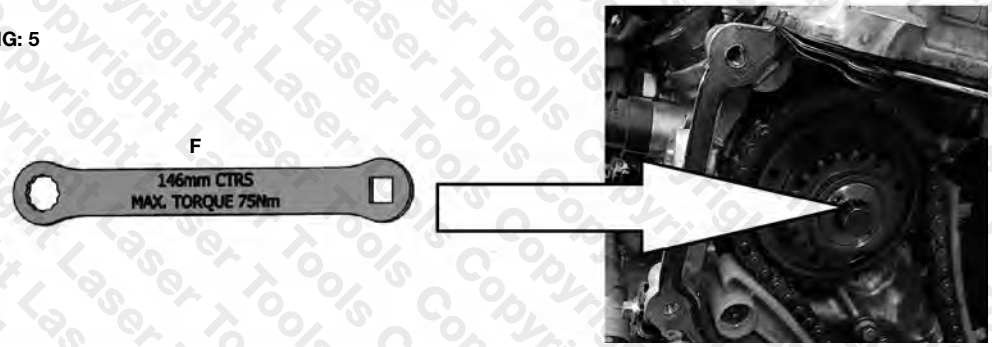


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Component F – High-pressure Fuel pump Sprocket Torque Spanner:

• Used to allow tightening of the fuel pump pulley fixing using a torque wrench. Figure 5.

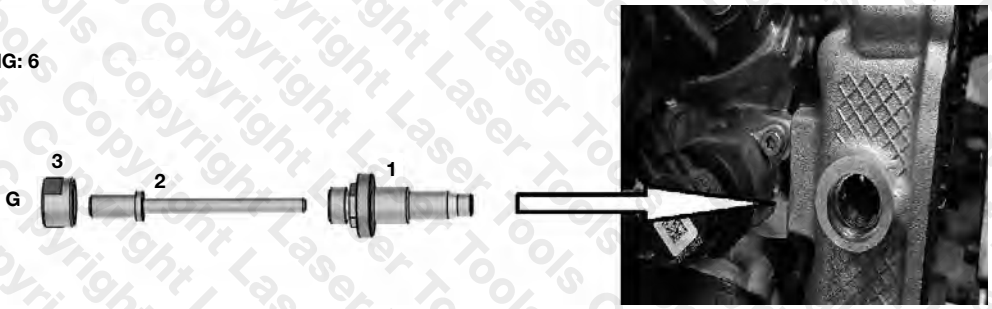
FIG: 5



Component G – High-pressure fuel pump locking tool:

• Disassemble component (G) and fit to the engine in the sequence shown in Figure 6.

FIG: 6



9539 Engine Timing Kit
for JLR 3.0L Inline 6 Cylinder Petrol

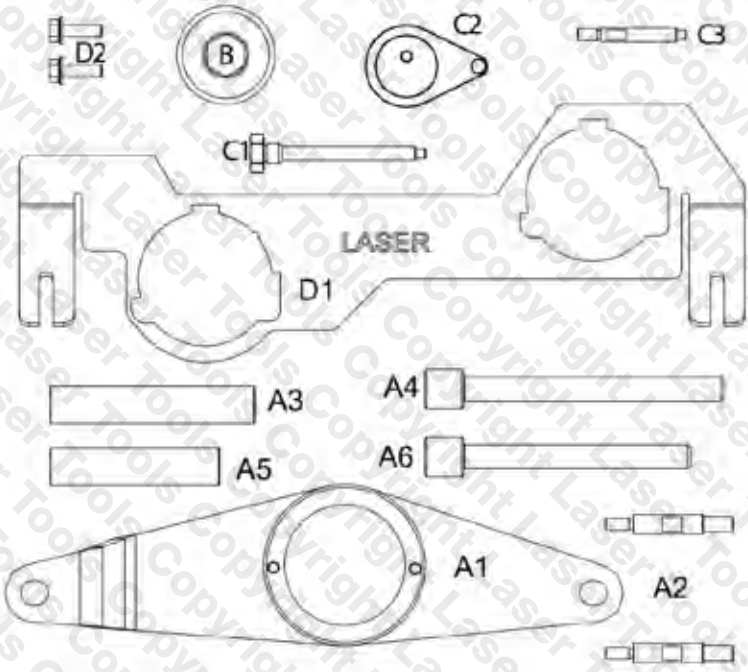
Introduction

Introduced in response to customer demand, the Laser 9539 Engine Timing Kit has been designed to allow the user to lock the JLR 3.0L petrol engines listed below in their timed position, enabling the camshaft drive chain to be safely removed and replaced, or the engine timing to be checked. Warning: The engines listed are typically equipped with a 48V hybrid system.

- Vehicle applications include: Jaguar F-Pace (2020 - 2024). Land Rover Defender (from 2019), Range Rover (from 2019), Range Rover Sport (from 2019) & Range Rover Velar (from 2020).
- Engine code applications: 3.0L petrol, PT306, AJ20P6H & AJ20P6H PHEV.
- Equivalent to OEM: JLR-303-1659, JLR-303-1656, JLR-303-1658 & JLR-303-1657.
- Designed for the 3.0L, inline 6-cylinder petrol engine typically paired with a 48V mild hybrid electric vehicle (MHEV) system featuring a belt-integrated starter generator (BiSG).
- For 3.0L diesel engines (DT306, AJ20D6 & DT306) please see Laser Part No. 9131. Made in Sheffield.

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Components



Ref.	Code	OEM Ref	Description
A1	C1093	JLR-303-1659	Crankshaft Pulley Locking Tool
A2			
A3			
A4			
A5			
A6			
B	C1092	JLR-303-1656	Crankshaft Turning Tool
C1	C1161	JLR-303-1658	Inlet Camshaft Locking Tool
C2			Exhaust Camshaft Locking Tool
C3			
D1	C1162	JLR-303-1657	Camshaft Adjuster Alignment Tool
D2			

NOTE:
Item **B** can be found in the 9579 Supplementary Tool Kit for JLR.

Applications

Make	Model	Year	Engine Codes
Jaguar	F-Pace	2020 to 2024	**3.0** PT306 AJ20P6H AJ20P6H PHEV
Land Rover	Defender	From 2019	
	Range Rover	From 2019	
	Range Rover Sport	From 2019	
	Range Rover Velar	From 2020	

Always refer to the website for most up to date applications:
www.lasertools.co.uk/product/9539

Instructions

The following instructions are for guidance only. Please refer to OEM derived data such as the vehicle manufacturers' own data or Autodata.

The use of this engine timing tool kit is purely down to the user's discretion and The Tool Connection Ltd. cannot be held responsible for any damage caused whatsoever.



The vehicles fitted with this engine may be Hybrid or Mild-Hybrid and use high voltage electricity that may present a risk of serious injuries. ALWAYS follow manufacturer's instructions when working with Hybrid vehicles.

<u>Basic component use</u>: For full instructions please refer to OEM or Autodata instructions.

NOTE: Due to the timing chains being at the rear of the engine, removal and fitting of the timing chains requires the removal of the transmission and flywheel/drive plate.

- **Turning the crankshaft in the normal direction of rotation, align the crankshaft pulley**
- **timing marks with the arrow on the timing chest case.**
- **Align the engine camshaft timing marks.**

Instructions

Components A = Crankshaft Pulley Locking Tool:

Used to lock and hold the crankshaft pulley in place.

- Working on the front of the engine, fit the crankshaft pulley locking tool as shown in Figure 1.

FIG:1



Components B = Crankshaft turning Tool:

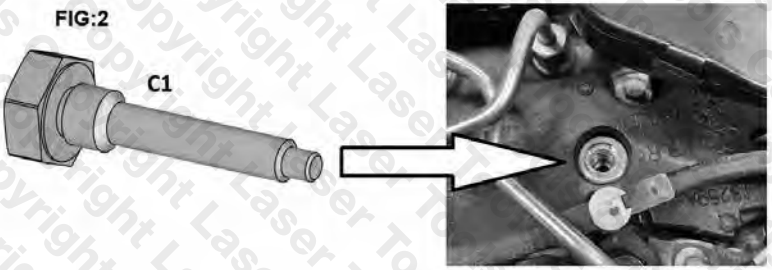
B = Crankshaft turning tool.

Components C1 = Inlet Camshaft locking pin:

Used to lock and hold the inlet camshaft in place.

- Working from the top of the engine remove the blanking plug on top of the camshaft coverand fit component (C1) through the hole in the camshaft as shown in Figure 2.

FIG:2



Instructions

Components C2 & C3 = Exhaust Camshaft locking pin:

Used to lock and hold the exhaust camshaft in place.

- Assemble components (C2 & C3) as shown in Figure 3.
- Remove the oil filler tube and fit the assembly as shown in Figure 3.



FIG:3

Components D = Camshaft Pulley Locking Tool:

Used to lock and hold the camshaft pulleys in place.

- With the crankshaft pulley locking tool and camshaft locking pin all correctly fitted removethe secondary timing chain tensioner.
- Fit component D1 as shown in Figure 4, using holding bolts D2 to fasten to the engine.

FIG:4



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Safety Warnings - please read

- If the engine has been identified as an Interference engine, damage to the engine will occur if the timing belt has been damaged. A compression check of all the cylinders should be taken before the cylinder head (s) are removed.
- Do not turn crankshaft or camshaft when the timing belt/chain has been removed.
- To make turning the engine easier, remove the spark plugs/glow plugs or injectors.
- Observe all tightening torques.
- Do not turn the engine using the camshaft or any other sprocket.
- Disconnect the battery earth lead (check Radio code is available).
- Do not use cleaning fluids on belts, sprockets or rollers.
- Some toothed timing belts are not interchangeable. Check the replacement belt has the correct tooth profile.
- Always mark the belt with the direction of running before removal.
- Do not lever or force the belt onto its sprockets.
- Do not use timing pins to lock the engine when slackening or tightening the crankshaft pulley bolts.
- ALWAYS REFER TO A REPUTABLE MANUFACTURERS WORKSHOP MANUAL.

Our products are designed to be used correctly and with care for the purpose for which they are intended. No liability is accepted by the Tool Connection for incorrect use of any of our products, and the Tool Connection cannot be held responsible for any damage to personnel, property or equipment when using the tools. Incorrect use will also invalidate the warranty.

If applicable, the applications database and any instructional information provided has been designed to offer general guidance for a particular tool's use and while all attention is given to the accuracy of the data no project should be attempted without referring first to the manufacturer's technical documentation (workshop or instruction manual) or the use of a recognised authority such as Autodata.

It is our policy to continually improve our products and thus we reserve the right to alter specifications and components without prior notice. It is the responsibility of the user to ensure the suitability of the tools and information prior to their use.

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