

Engine - ID4 2.2L Diesel -**Lubricants, Fluids and Sealers**

Item	Specification
SAE 5W-30 engine oil (With DPF)	5W/30 - WSS-M2C934-B
SAE 5W-30 engine oil (Without DPF)	5W/30 - WSS-M2C913-B or C
Sealant — oil pan, camshaft carrier and engine front cover	WSE-M4G323-A4

Cylinder Head Dimensions

Description	mm
Maximum distortion — measured longitudinally and diagonally	0.10
Peak to valley height of mating surface	0.02
Cylinder head gasket thickness	
Piston protrusion of 0.310 - 0.400 mm	1.1 (one tooth)
Piston protrusion of 0.401 - 0.450 mm	1.15 (two teeth)
Piston protrusion of 0.451 - 0.500 mm	1.2 (three teeth)

Oil pressure specifications

Description	bar
Minimum oil pressure at idle speed	1.25
Minimum oil pressure at 2000 rpm	2.0

Description	Nm	lb-ft
Transmission to engine bolts	40	30
Engine mount nuts	80	59
Engine mount bolts	80	59
Engine mount bracket bolts	63	46
Valve cover bolts	10	7
+ Rocker shaft bolts		
Stage 1	10	7
Stage 2	Further 30 degrees	
Timing chain guide bolts	15	11
Timing chain tensioner nut	15	11
Timing chain tensioner bolts	15	11
Oil pump chain tensioner bolts	22	16
Camshaft sprocket bolts	35	24
Fuel injection pump sprocket bolts	33	26
Generator bolts	48	35
Generator mounting bracket bolts	25	18
Exhaust gas recirculation (EGR) valve to EGR valve outlet tube bolts	10	7
EGR valve to EGR cooler bolts	23	17
Exhaust manifold to EGR cooler bolts	23	17
Intake manifold bolts	15	11
Intake manifold to EGR valve outlet tube bolts	10	7
Coolant pump bolts	23	17
Oil level indicator tube bolt	10	7
Oil pump pickup tube bolts	10	7
Oil filter housing assembly bolts	23	17
Oil pump bolts	10	7
Oil pan drain plug	23	17
Oil pressure switch	15	11
Oil pan bolts		
Stage 1	7	5
Stage 2	14	10
Coolant manifold bolts	10	7
EGR cooler to cylinder head bolts	23	17
+ Cylinder head bolts	A	-
Engine front cover bolts	14	10
Engine front cover nuts	10	7
Glow plugs	10	7
Power steering pump bolts	23	17
Power steering pump bracket bolts	23	17
Exhaust manifold bolts	40	30
+ Exhaust manifold nuts	40	30
+ Exhaust manifold studs	20	15
Turbocharger oil return tube bolts	10	7

Turbocharger oil return tube clamp bolt	22	16
Turbocharger oil supply line banjo bolt	35	26
Engine lifting eye bolts	22	16
Crankshaft position sensor (CKP) bolt	7	5
+ Crankshaft pulley bolts		
Stage 1	45	33
Stage 2	Further 120 degrees	
Crankshaft rear oil seal carrier bolts	10	7
+ Flywheel bolts		
Stage 1	25	18
Stage 2	40	30
Stage 3	Further 48 degrees	
Crankshaft main bearing cap bolts		
Stage 1	45	33
Stage 2	80	59
Stage 3	Further 105 degrees	
Connecting rod bearing cap bolts		
Stage 1	30	22
Stage 2	Further 100 degrees	
Ladder frame bolts	23	17
Camshaft carrier bolts	A	-
Fuel injector clamp bolts		
Stage 1	6	4
Stage 2	Further 180 degrees	

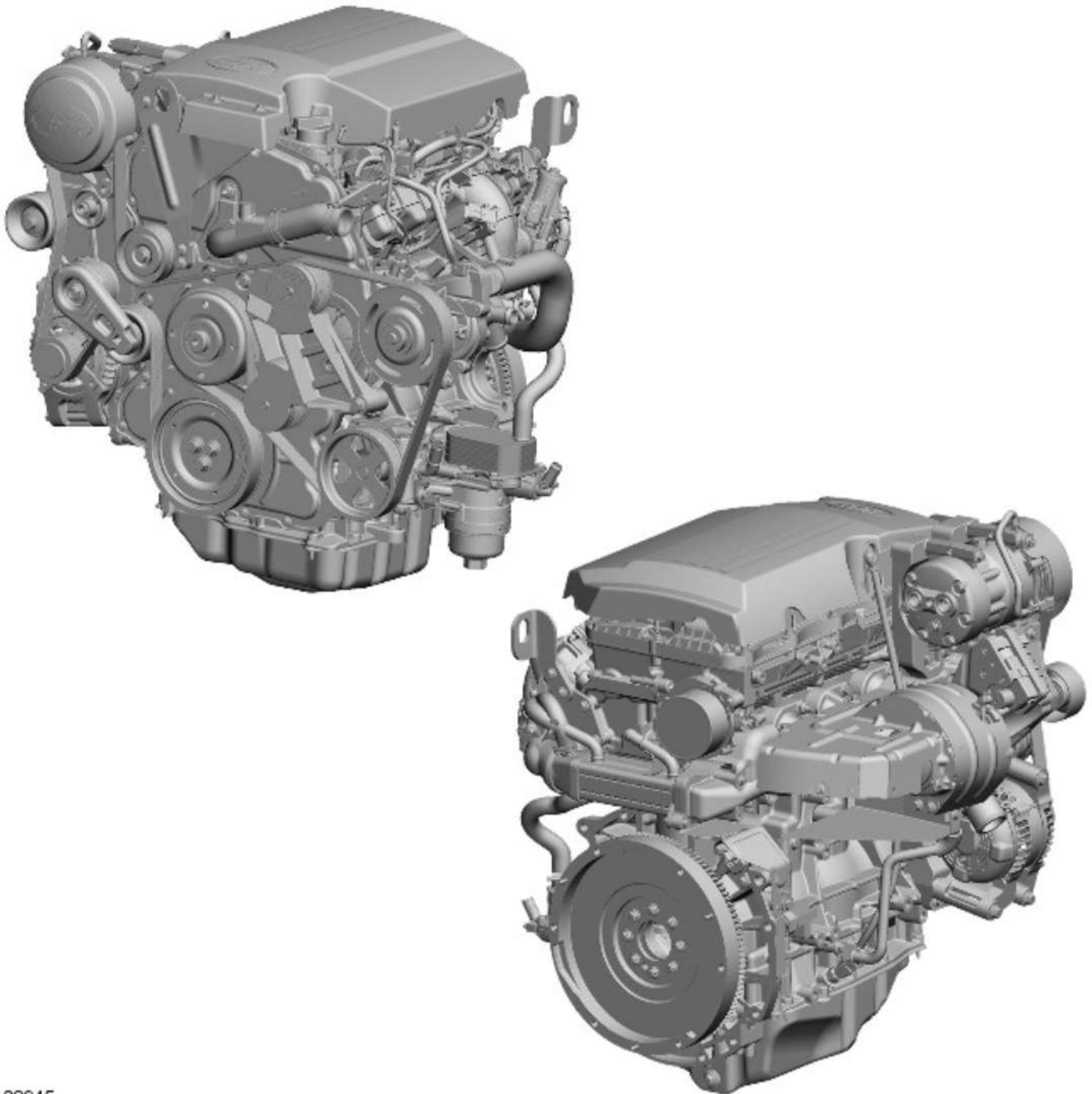
+ New nuts/bolts/studs must be installed

A - Refer to the procedure in this section

Engine - ID4 2.2L Diesel - Engine

Description and Operation

EXTERNAL VIEW



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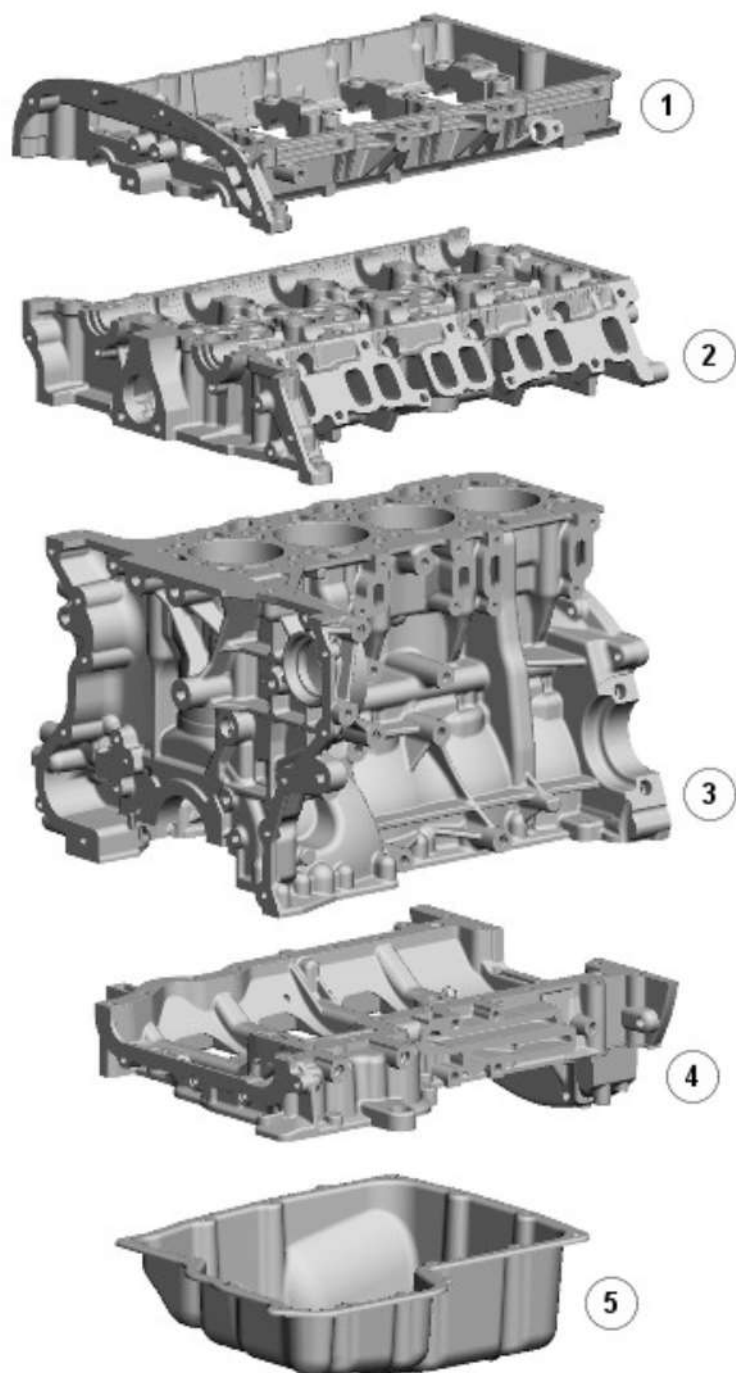
E138945

OVERVIEW

The 2.2 liter diesel engine is a 4 cylinder unit with common rail fuel injection and with four valves per cylinder operated by dual overhead camshafts. The unit is liquid cooled and turbocharged.

The cylinder block is manufactured in Compacted Graphite Iron (CGI) and is coupled with a separate aluminum 'ladder-frame' skirt stiffener to provide a lightweight, compact and very stiff bottom end of the engine. The cylinder head and camshaft carrier are cast aluminum. The single-piece oil sump is formed from pressed steel. The exhaust manifold is cast iron and includes connections for the turbocharger and [EGR \(exhaust gas recirculation\)](#) cooler. A plastic acoustic cover is fitted over the upper engine to absorb engine-generated noise.

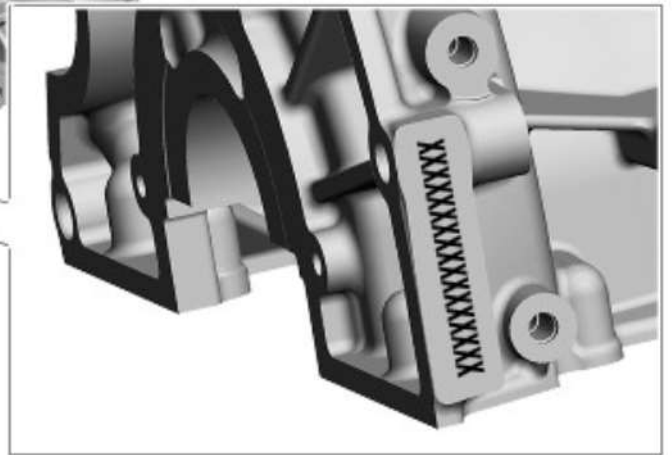
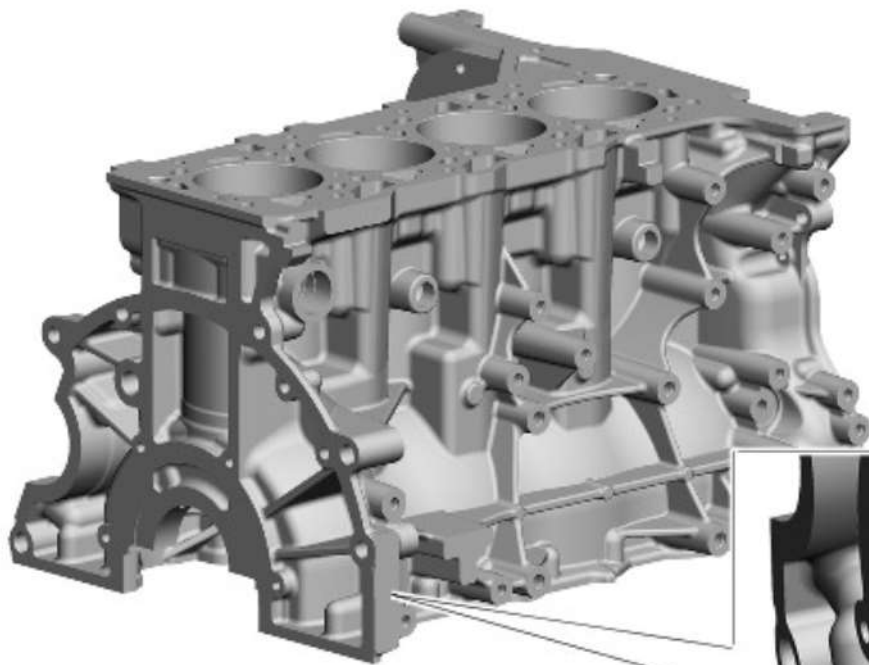
Engine Structure



E138946

Item	Part Number	Description
1	-	Camshaft carrier
2	-	Cylinder head
3	-	Cylinder block
4	-	Skirt stiffener
5	-	Oil pan

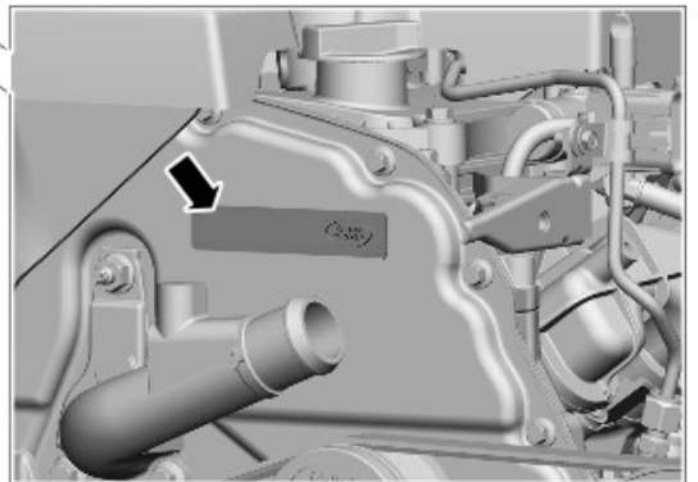
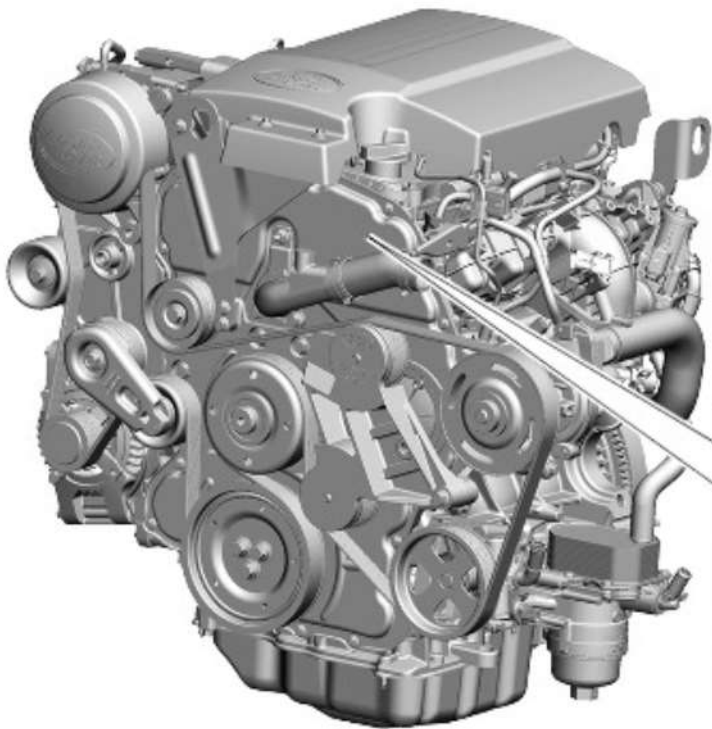
Engine Identification Stamp



E138947

The alpha-numeric engine type number (5 digits) and numeric identification number (12 digits) are stamped on the rear right side of the cylinder block. These numbers are repeated on a tamper-proof engine identification label on the timing cover.

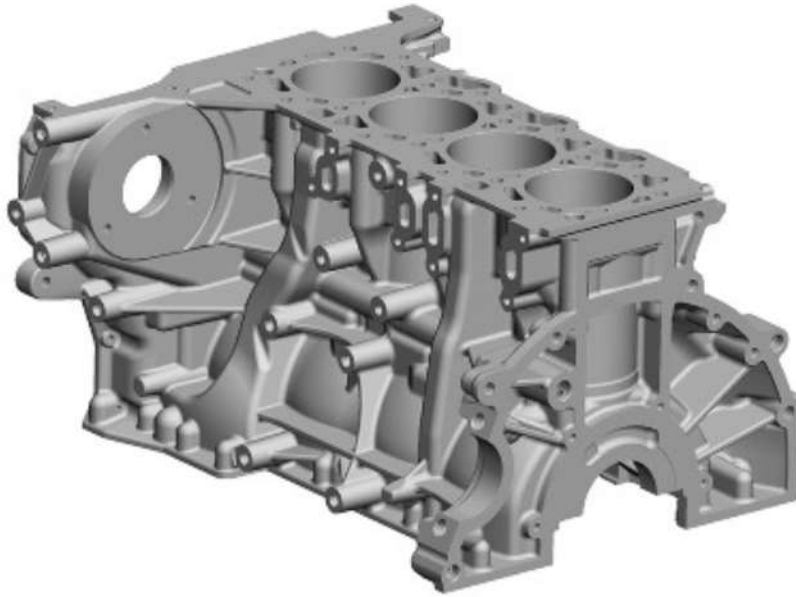
Engine Identification Label



E138948

The engine type number, DT224, is derived from **Diesel Turbo, 2.2 liter, 4 cylinder**. The engine identification number is derived from the date and time (24 hour clock) the block was manufactured, **DD/MM/YY/HH/MM/SS**.

CYLINDER BLOCK



E138949

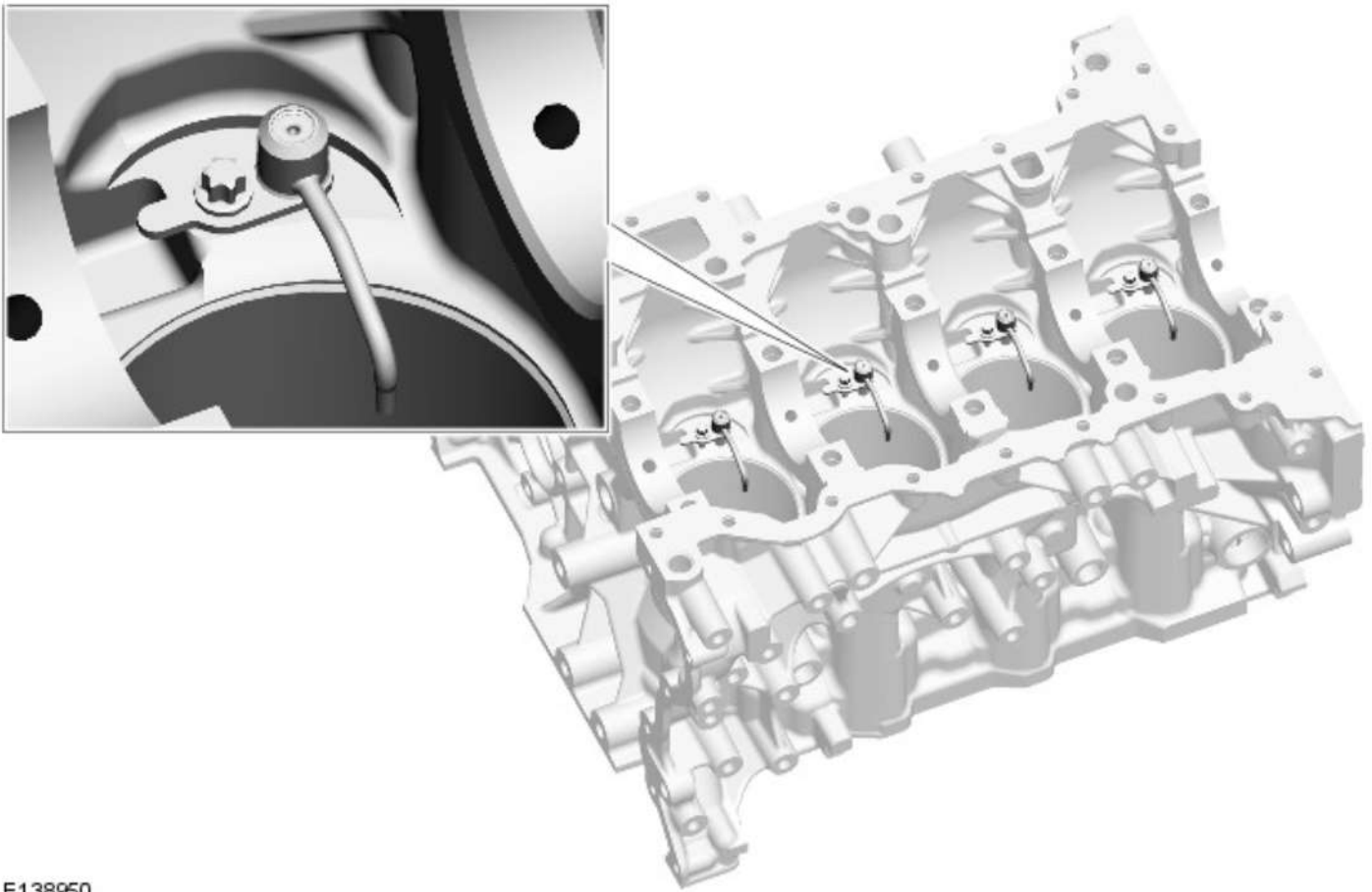
The cylinders and crankcase are contained in the cylinder block, which is of single cast CGI construction with a hollow beam structure. With this type of construction less material is required than for a conventional cast iron block, therefore reducing engine weight and length.

The cylinders are numbered consecutively from 1 to 4, with cylinder 1 at the front of the engine.

The cylinder bores are machined directly into the block. Cylinder cooling is achieved by coolant circulating through chambers in the cylinder block casting.

Passages in the cylinder block distribute engine oil to the main bearings, piston cooling jets, cylinder head and turbocharger. The passage that supplies oil to number 1 main bearing and the turbocharger contains a filter, to prevent debris entering the turbocharger and damaging the bearings.

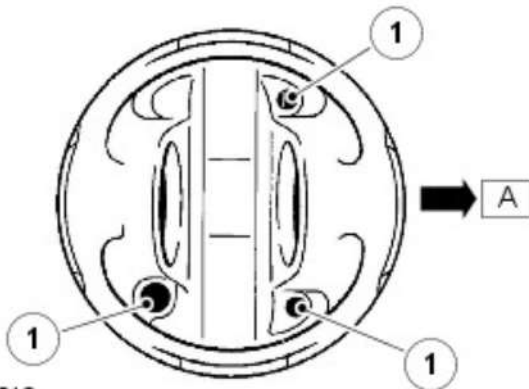
Piston Cooling Jets



E138950

Jets located in the cylinder block provide piston and piston pin lubrication and cooling. These jets spray oil on to the inside of the piston. The oil then flows through an internal wave shaped oil cooling channel to help cool the piston crown.

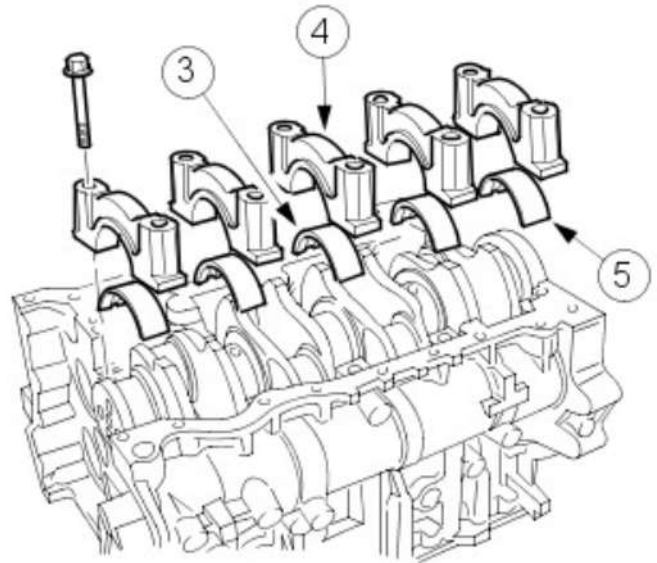
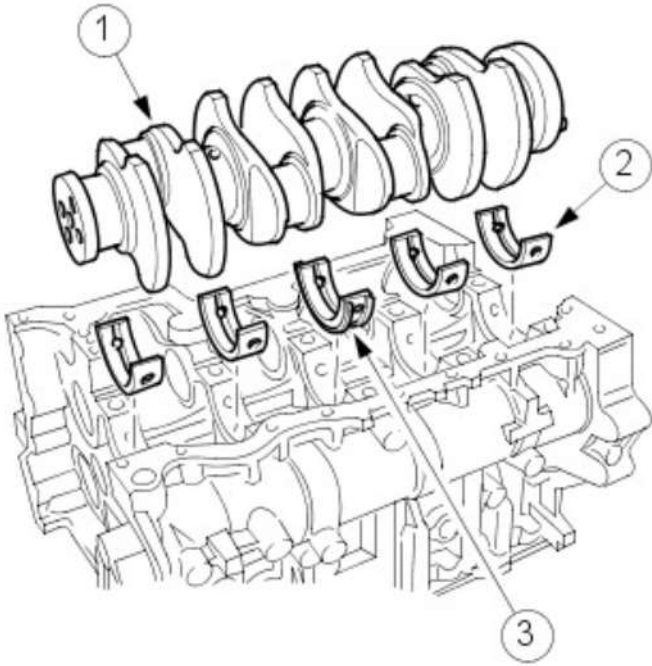
Piston Oil Cooling



E86218

Item	Part Number	Description
A	-	Front of the engine
1	-	Oil cooling channels

CRANKSHAFT



TIE0031821

Item	Part Number	Description
1	-	Crankshaft
2	-	Upper main bearing shell
3	-	Upper main bearing shell (No.3 is a thrust bearing)
4	-	Bearing cap
5	-	Lower main bearing shell

The crankshaft is forged steel and fillet rolled with induction hardened journals, which run in 5 bearings with clamped 2 layer bearing shells.

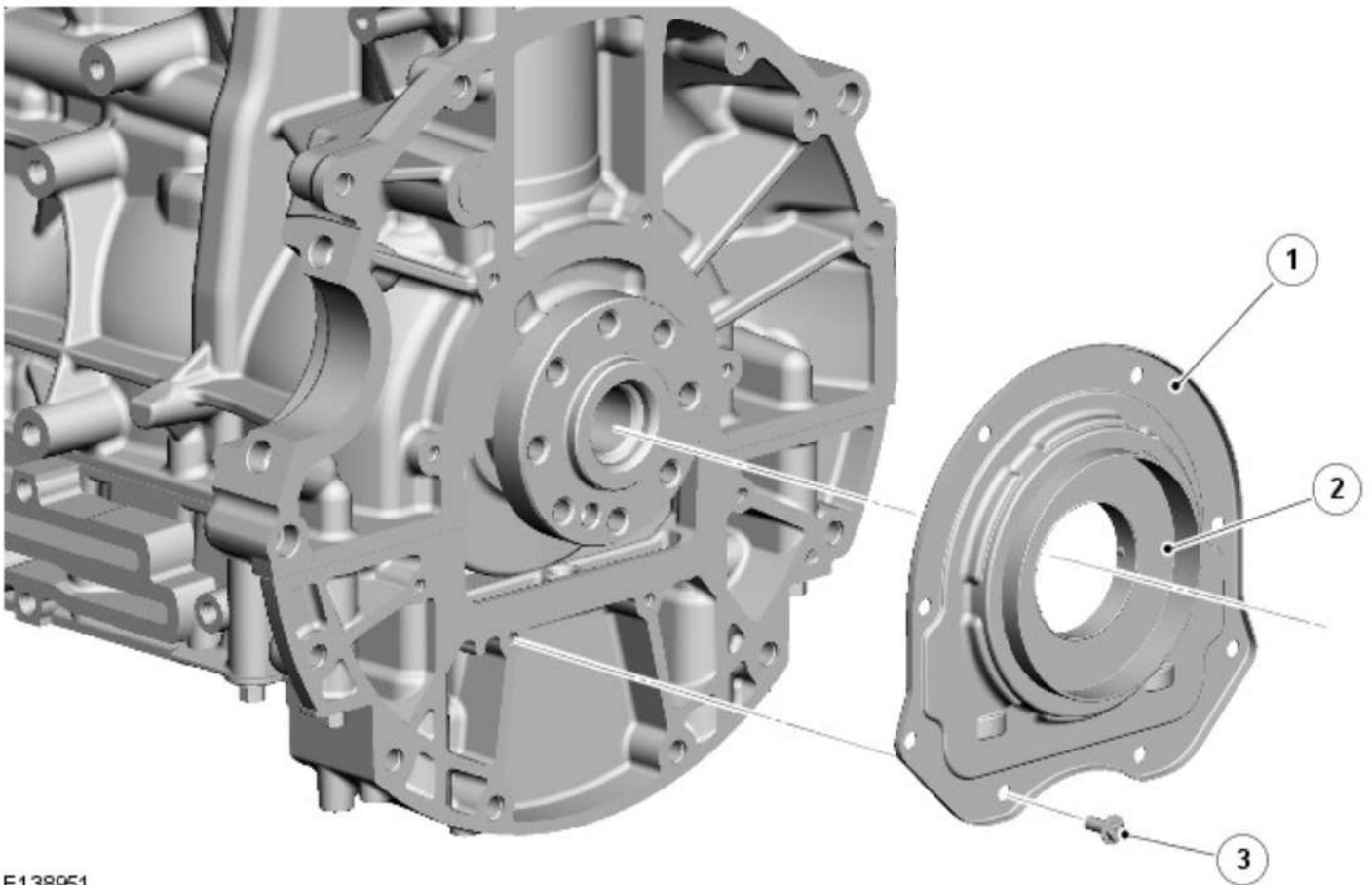
The main bearing caps are double and cross-bolted, this adds to the strength and rigidity of the engine block.

The main bearings are aluminum/tin split plain selective bearings. An oil groove in the top half of each bearing transfers oil into the crankshaft for lubrication of the connecting rod bearings. The upper and lower shells of bearing number 3 contain integral thrust washers, which limit the end float of the crankshaft.

The arrow on the bearing caps must point towards the front of the engine and are identified as follows:

Bearing Cap	Identification
1	F (front)
2	2
3	3
4	4
5	R (rear)

Crankshaft Rear Oil Seal



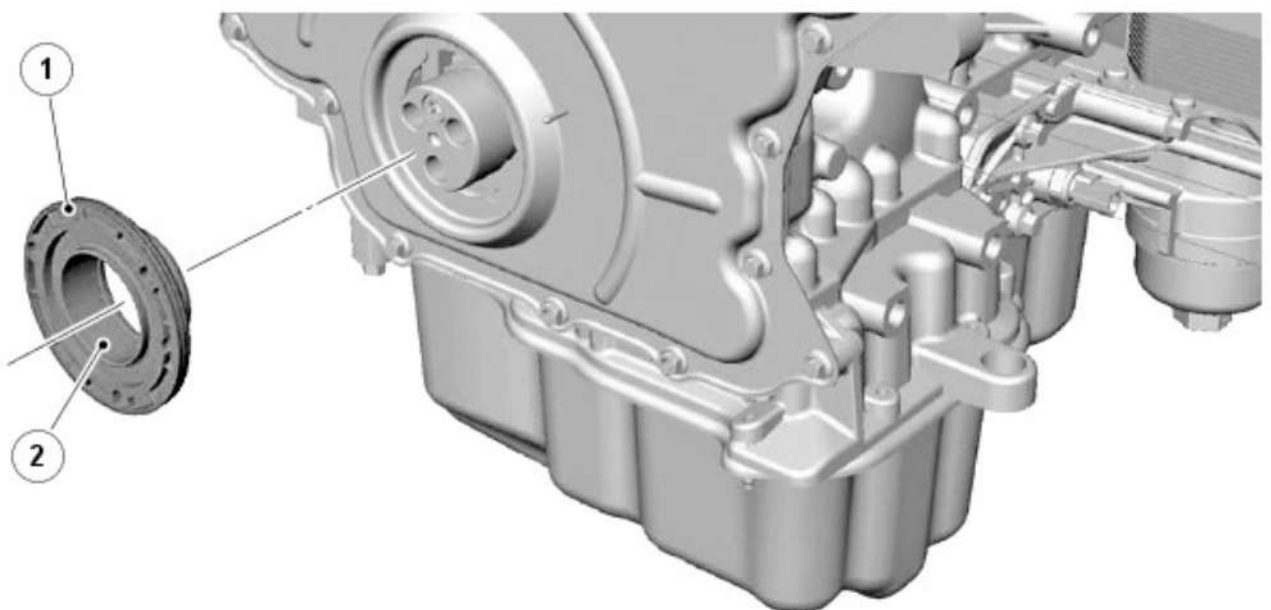
E138951

Item	Part Number	Description
1	-	Rear oil seal
2	-	Installation sleeve
3	-	Bolt (8 off)

The crankshaft rear oil seal consists of a rubber sealing element installed in a metal case attached to the rear of the cylinder block and skirt stiffener. A rubber gasket seals the metal case to the cylinder block and skirt stiffener.

A new crankshaft rear oil seal is supplied with an installation sleeve that must not be removed until the seal is fully installed.

Crankshaft Front Oil Seal



E138952

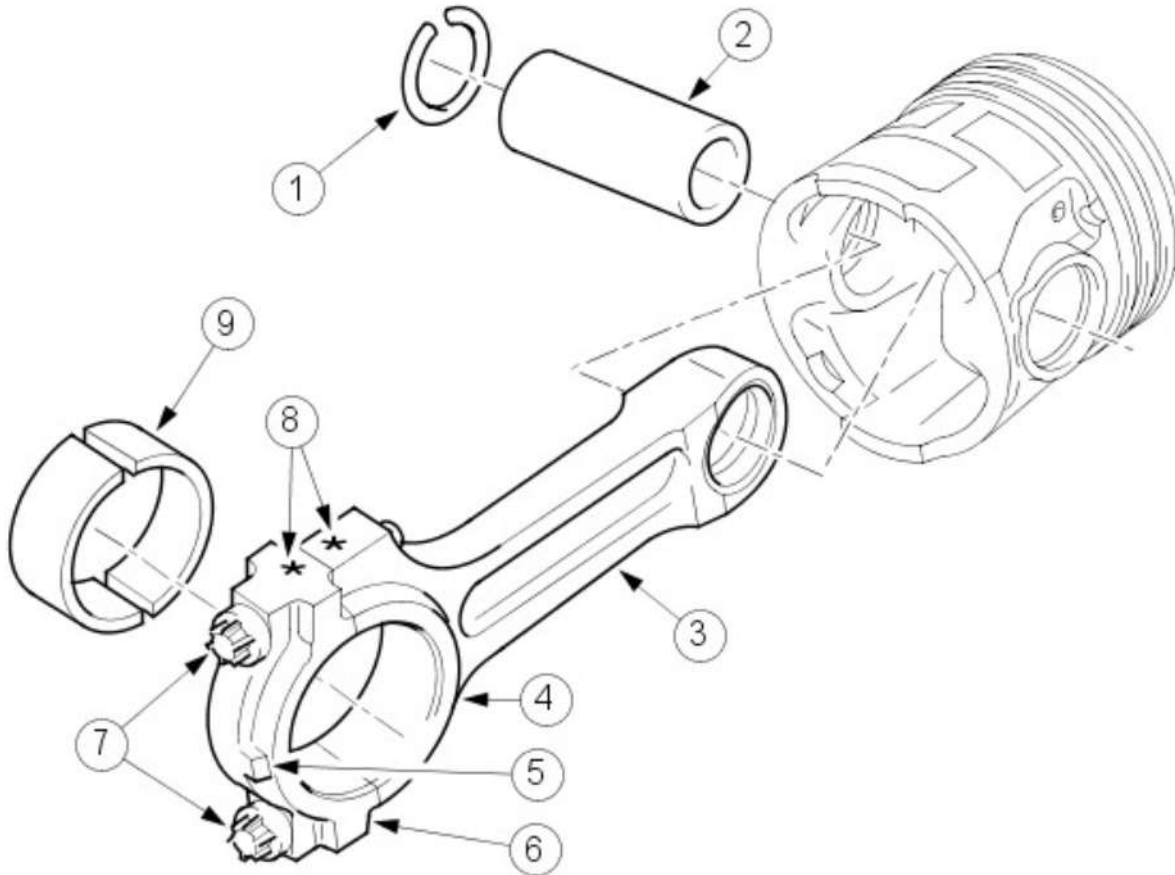
Item	Part Number	Description
1	-	Front oil seal

2 - Installation sleeve

The crankshaft front oil seal consists of a PTFE (polytetrafluoroethylene) seal assembly installed in the front cover. Three lugs on the outer case of the seal assembly engage with the front cover to lock the seal assembly in position.

A new crankshaft front oil seal is supplied with an installation sleeve that is pushed out when the seal is installed.

CONNECTING RODS AND PISTONS



TIE0031819

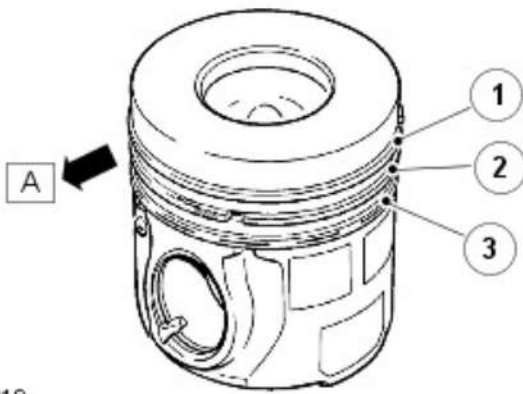
Item	Part Number	Description
1	-	Circlip
2	-	Piston pin
3	-	Connecting rod
4	-	Connecting rod bearing
5	-	Projection
6	-	Bearing cap
7	-	Retaining bolts
8	-	Identification
9	-	Bearing shell

The connecting rods are manufactured from sinter-forged steel. The selective connecting rod bearings are aluminum/tin split plain bearings. The connecting rod bearing is 'sputter coated', which is a manufacturing process that layers the bearing material to produce a higher load capacity for improved durability.

Engine oil for lubrication of the connecting rod bearings is supplied from the main bearings through passageways in the crankshaft.

The connecting rods are available in 3 different lengths. For identification, the connecting rod and bearing cap are marked with the corresponding identification code.

Piston Rings



E86219

Item	Part Number	Description
A	-	Front of the engine
1	-	Upper compression ring
2	-	Lower compression ring
3	-	Oil control ring

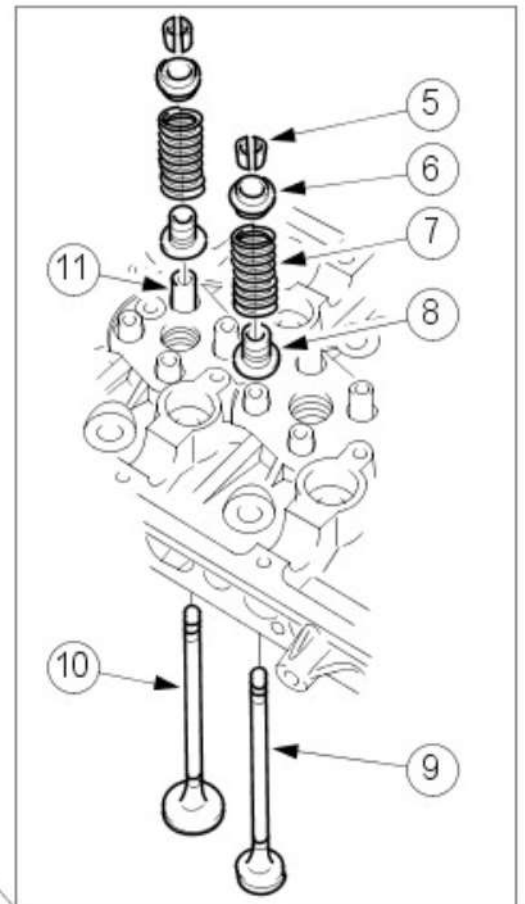
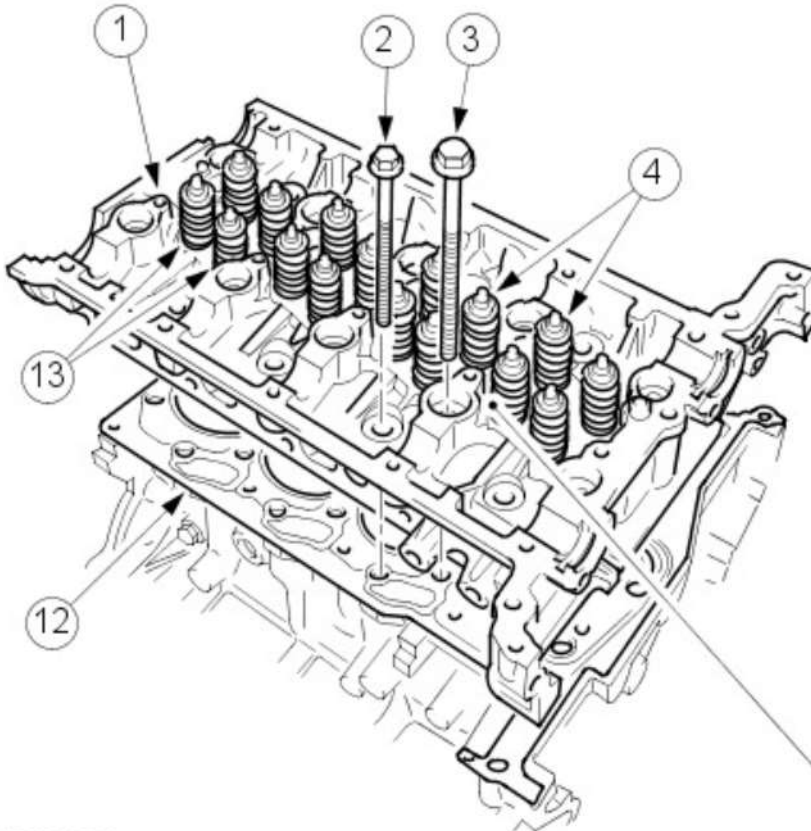
The pistons are made from aluminum alloy and are fitted with three rings. The piston crown incorporates a pronounced bowl, which forms the combustion chamber and promotes the swirl and turbulence necessary for good combustion and improved emissions. In addition, the piston also incorporates oil cooling galleries within the piston crown to enhance piston cooling.

The arrow on the piston crowns must point towards the front of the engine.

Each piston is installed on a wrist pin located in an aluminum/tin bushing in the connecting rod.

CYLINDER HEAD

Cylinder Head and Valves



TIE0031814

Item	Part Number	Description
1	-	Cylinder head
2	-	Outer cylinder head bolt (8 off)

3	-	Inner cylinder head bolt (10 off)
4	-	Intake valves (16 off)
5	-	Valve collets (32 off)
6	-	Spring retainer (16 off)
7	-	Valve spring (16 off)
8	-	Valve stem oil seal (16 off)
9	-	Exhaust valve (8 off)
10	-	Intake valve (8 off)
11	-	Valve guide (16 off)
12	-	Cylinder head gasket
13	-	Valve assembly

The cylinder head is made of gravity die cast aluminum. Four valves per cylinder provides improved cylinder charging. A compact combustion chamber and vertical fuel injectors guarantee optimum distribution of the fuel in the combustion chamber.

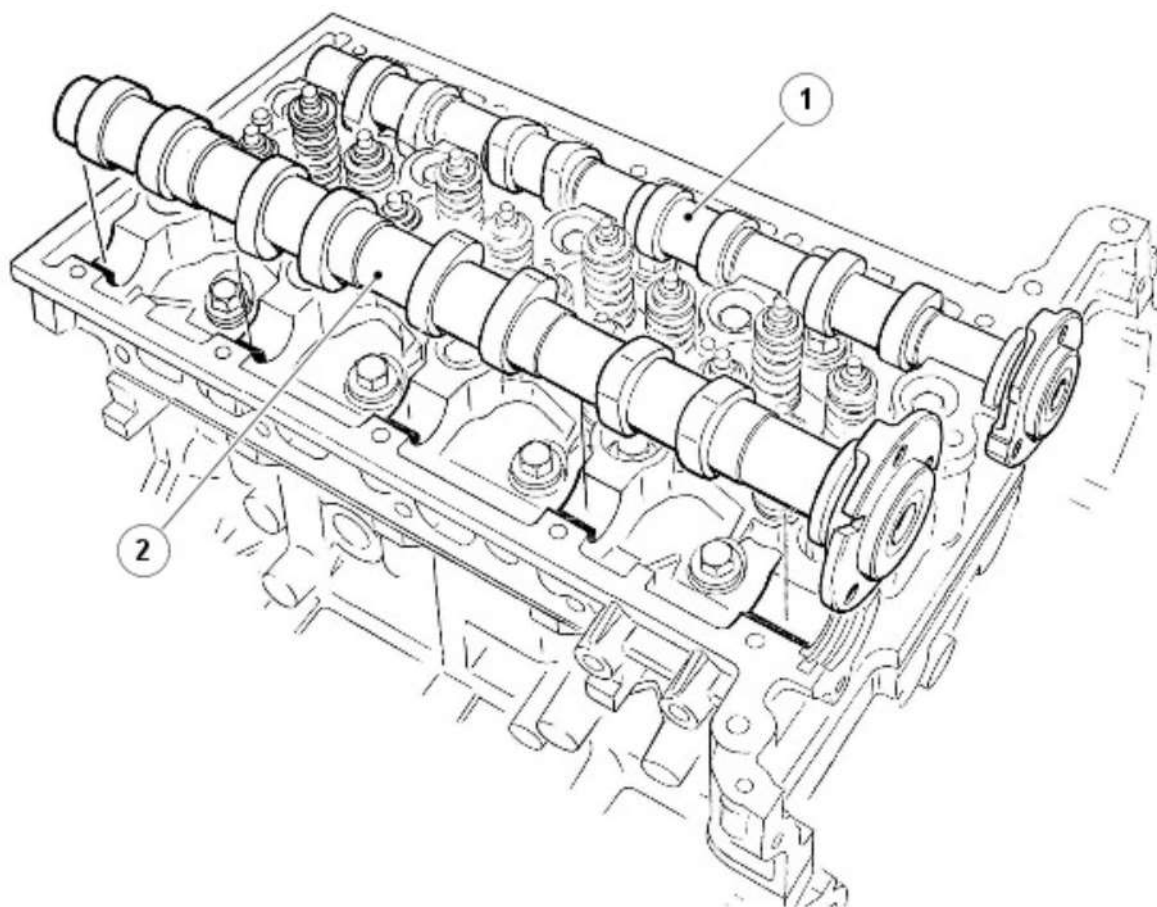
Eighteen deep-seated bolts help reduce distortion and secure the cylinder head to the cylinder block. The 8 cylinder head outer bolts are shorter than the inner bolts and are located beneath the camshafts, 4 under the inlet camshaft and 4 under the exhaust camshaft. Two hollow dowels align each cylinder head with the cylinder block.

The cylinder head has four ports machined at each cylinder location, 2 exhaust ports and 2 inlet ports. One of the inlet ports is helical and functions as a swirl port, the other is arranged laterally as a tangential port and functions as a charge port.

NOTE: The cylinder head cannot be reworked.

All valves are supported in sintered metal seats and guide inserts. Collets, valve collars and spring seats locate single valve springs on both intake and exhaust valves. Valve stem seals are integrated into the spring seats.

Camshafts



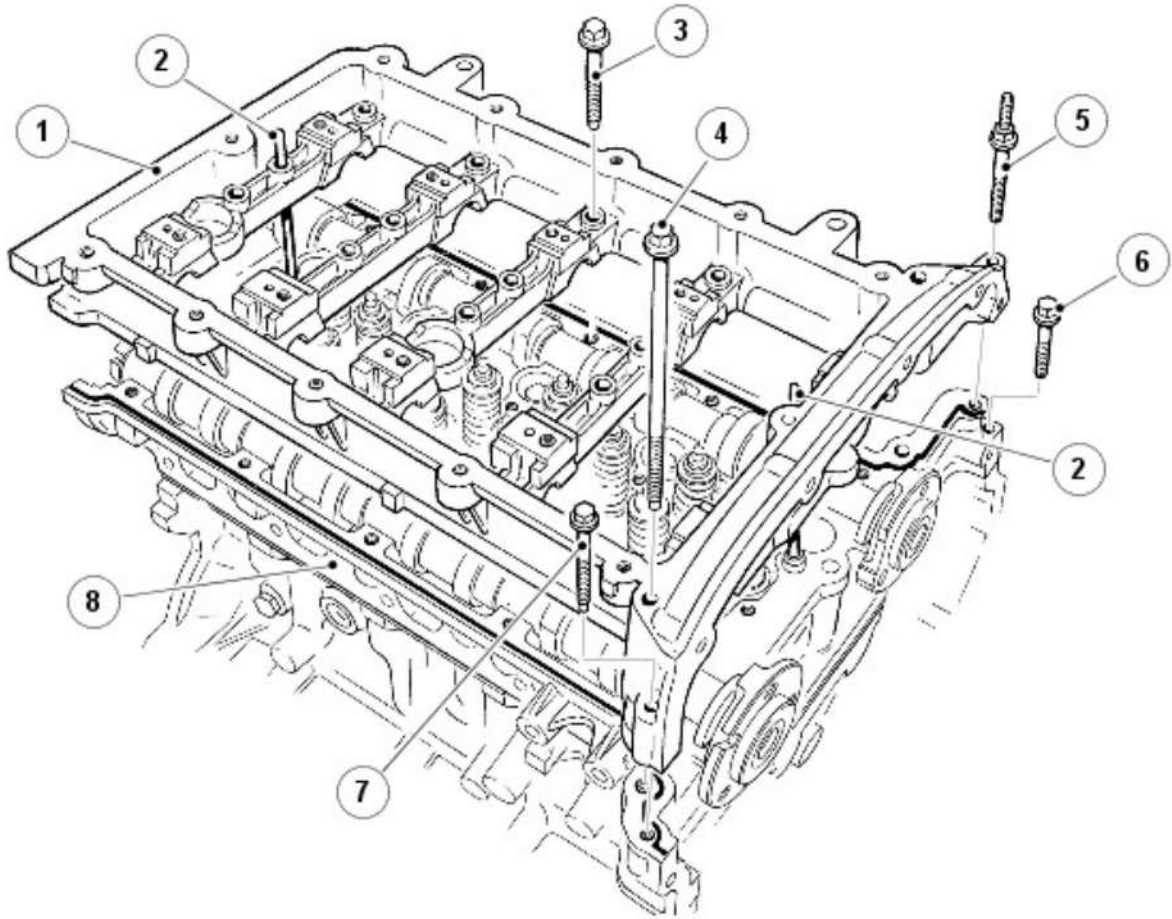
E86231

Item	Part Number	Description
1	-	Inlet camshaft
2	-	Exhaust camshaft

The camshafts are of a hollow steel tube construction, with pressed on sintered lobes and have a machined face at the front to accept the camshaft gear sprocket. The camshafts are retained in the cylinder head by the camshaft carrier. The reluctor, machined towards the rear of the inlet camshaft, enables the **CMP (camshaft position)** sensor to provide a signal, which enables the **ECM (engine control module)** to determine the position of the camshaft relative to the crankshaft.

For additional information, refer to: [Electronic Engine Controls](#) (303-14 Electronic Engine Controls - ID4 2.2L Diesel, Description and Operation).

Camshaft Carrier

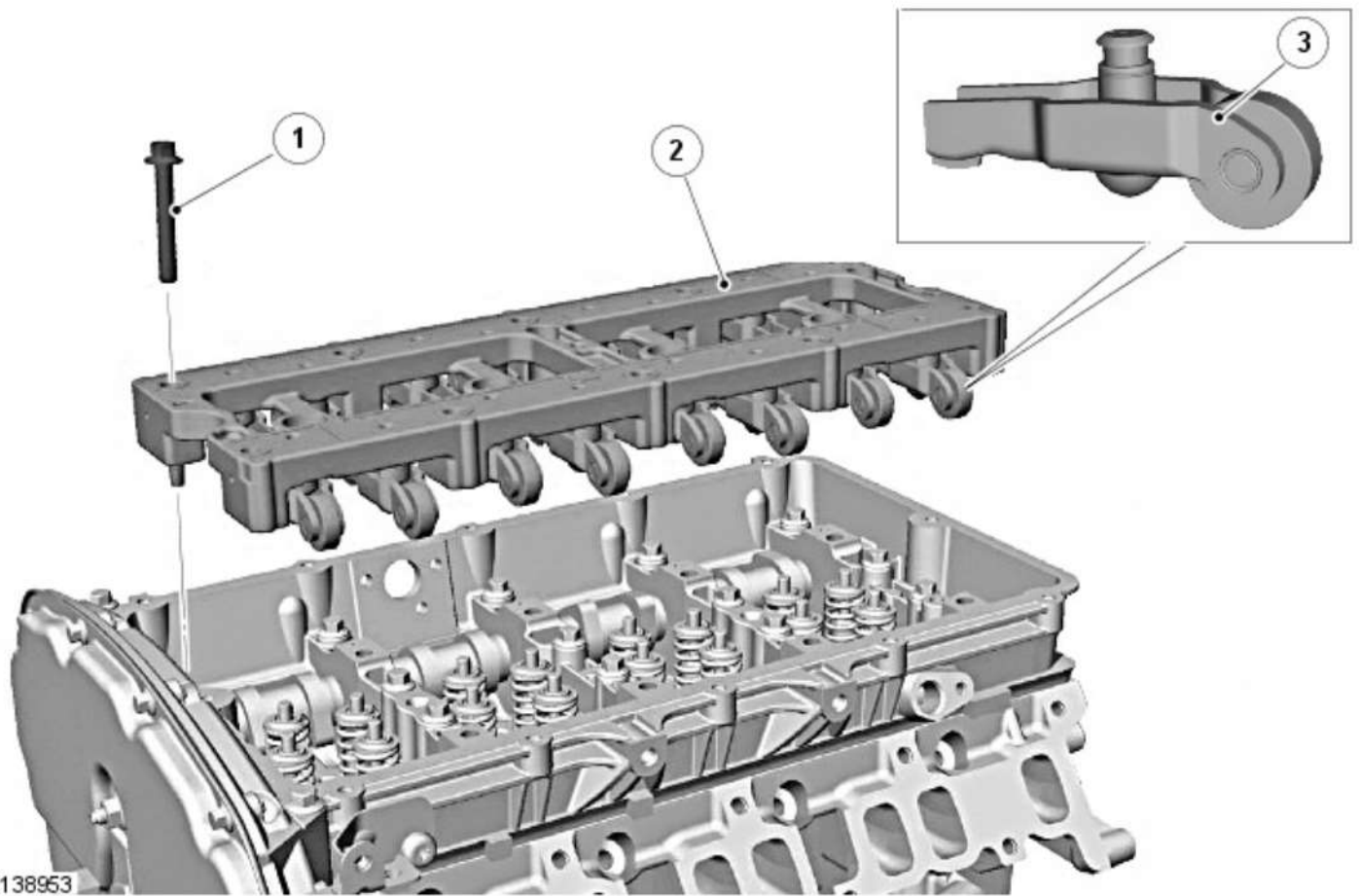


E86237

Item	Part Number	Description
1	-	Camshaft carrier
2	-	Alignment pin
3	-	Bolt (20 off)
4	-	Bolt (2 off)
5	-	Stud
6	-	Bolt
7	-	Bolt
8	-	Cylinder head

The aluminum camshaft carrier is located on top of the cylinder head and is retained by 24 bolts and a stud. Two alignment pins are used to accurately locate the carrier to the cylinder head.

Rocker Arms

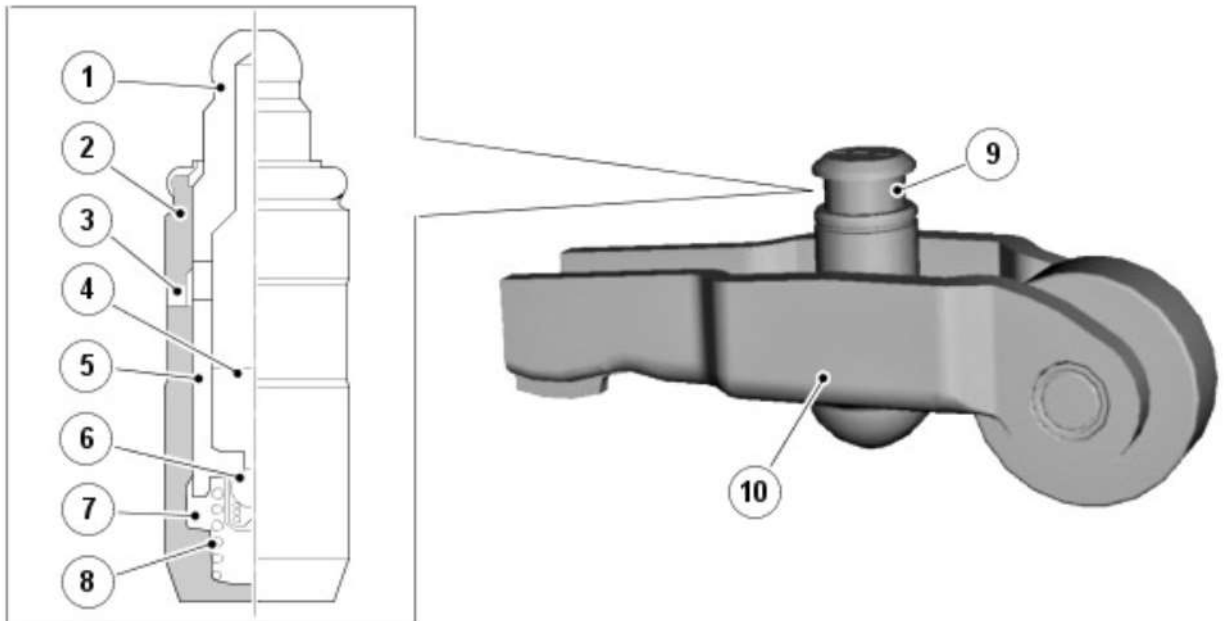


E138953

Item	Part Number	Description
1	-	Bolt (10 off)
2	-	Frame
3	-	Rocker assembly (16 off)

The valves are operated through roller-type rocker arms with integrated hydraulic lash adjusters, actuated by the camshaft lobes. The use of this type of actuation method helps reduce friction in the valve operating mechanism. The rocker arms are installed in a frame located in the camshaft carrier and secured with 10 bolts.

Lash Adjuster



E138954

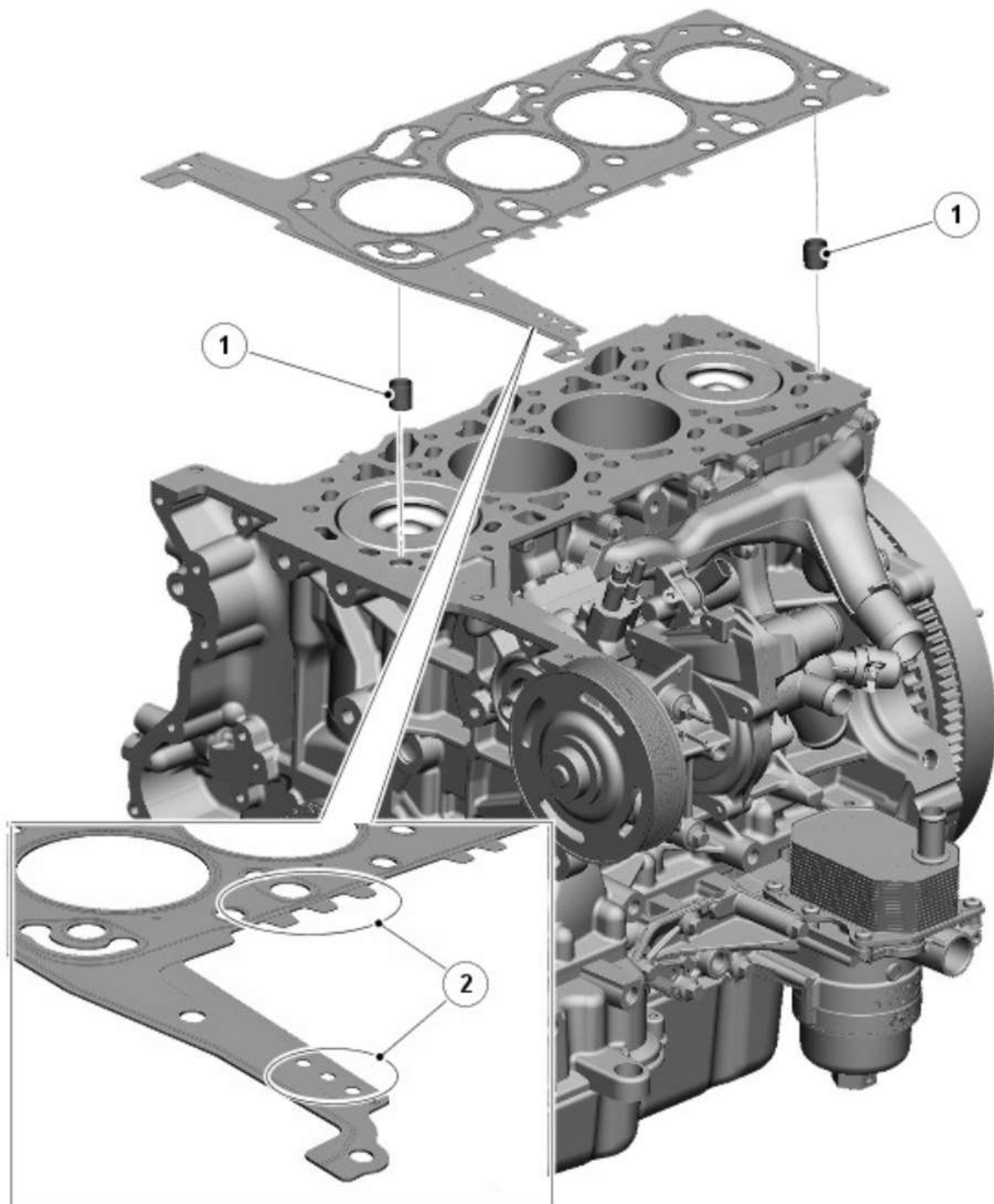
Item	Part Number	Description
1	-	Plunger cap
2	-	Hydraulic lash adjuster body
3	-	Oil hole

- 4 - Reservoir chamber
- 5 - Plunger
- 6 - Check ball
- 7 - High-pressure chamber
- 8 - Plunger spring
- 9 - Hydraulic lash adjuster
- 10 - Rocker arm

The body of the hydraulic lash adjuster contains a plunger and 2 chambers for oil feed and pressurized oil. The pressurized oil is supplied to the adjusters via the main oil galleries in the cylinder head and through a hole in the side of the adjuster body. The oil passes into a feed chamber in the adjuster and then through to a separate pressure chamber via a one-way ball valve.

Oil flow from the pressure chamber is determined by the amount of clearance between the adjuster outer body and the center plunger. Oil escapes up the side of the plunger every time the adjuster is operated, the downward pressure on the plunger forcing a corresponding amount of oil in the adjuster body to be displaced. When the downward pressure from the camshaft and rocker arm is removed (i.e. after the trailing flank of the camshaft lobe has passed), oil pressure forces the adjuster's plunger up again. This pressure is not sufficient to effect the valve operation, but eliminates the clearance between the finger rocker and top of the valve stem.

Cylinder Head Gasket



Item	Part Number	Description
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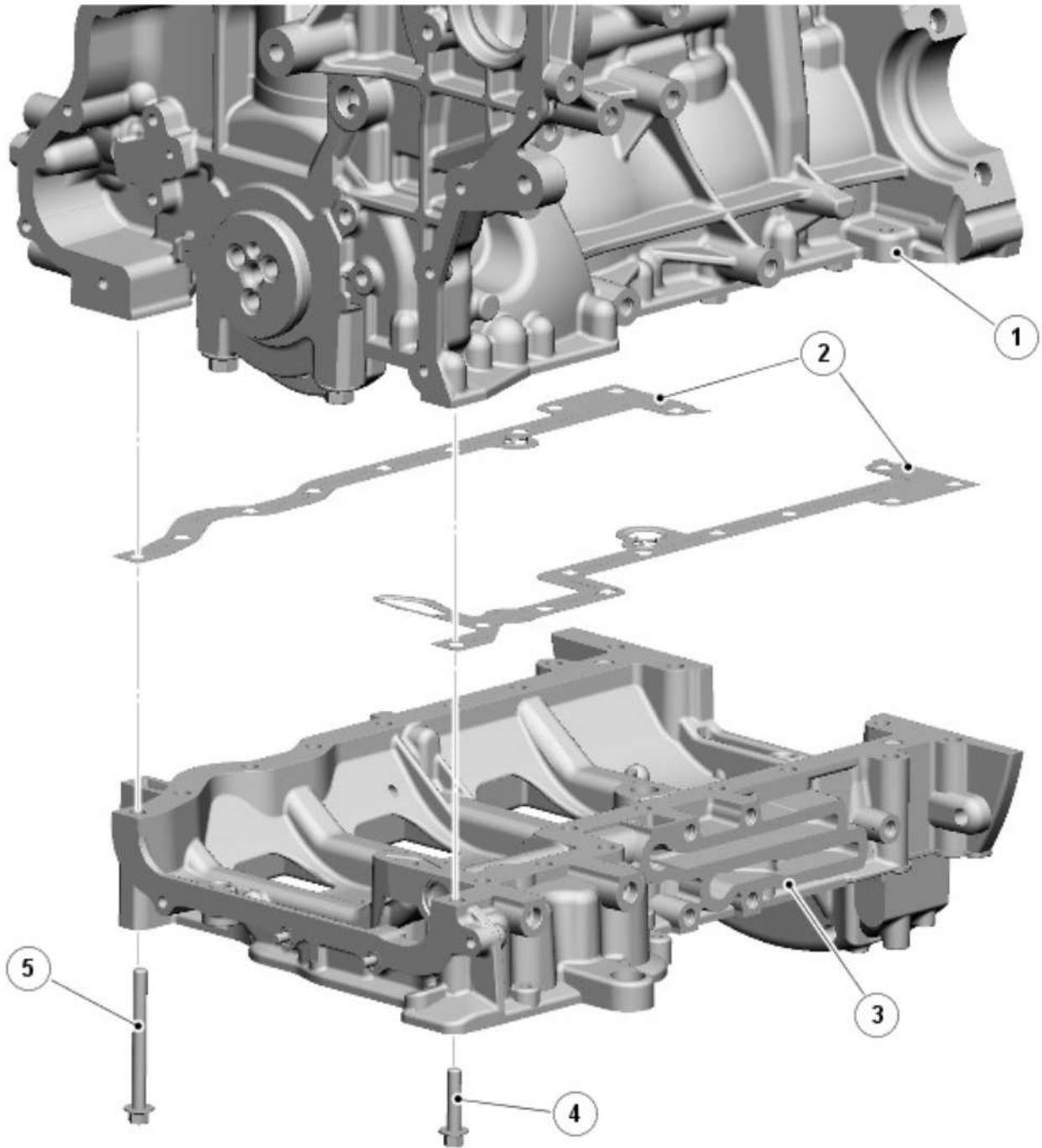
- | | | |
|---|---|----------------------------------|
| 1 | - | Dowel |
| 2 | - | Grade identification holes/teeth |

The cylinder head gasket is a 4-layer, laminated steel type that is available in 3 thickness grades. The choice of gasket grade is dependent on the maximum piston protrusion in the cylinder block. The grade of a gasket is shown by the number of identification holes and teeth incorporated into the gasket.

Two dowels ensure correct alignment of the cylinder head and gasket with the cylinder block.

CAUTION: If a cylinder head gasket is being changed, only use a new gasket with the same identification markings. If new pistons or connecting rods are fitted, measure the maximum piston protrusion height and select the appropriate gasket.

SKIRT STIFFENER



E138957

- | Item | Part Number | Description |
|------|-------------|-----------------|
| 1 | - | Cylinder block |
| 2 | - | Gaskets |
| 3 | - | Skirt stiffener |

- 4 - Bolt (3 off)
- 5 - Bolt (19 off)

The aluminum alloy skirt stiffener is fitted to the lower cylinder block to stiffen the base structure of the engine thus helping to reduce NVH (noise, vibration and harshness). The frame is made of high-pressure die cast aluminum and also incorporates an oil baffle plate to reduce oil foaming and splash.

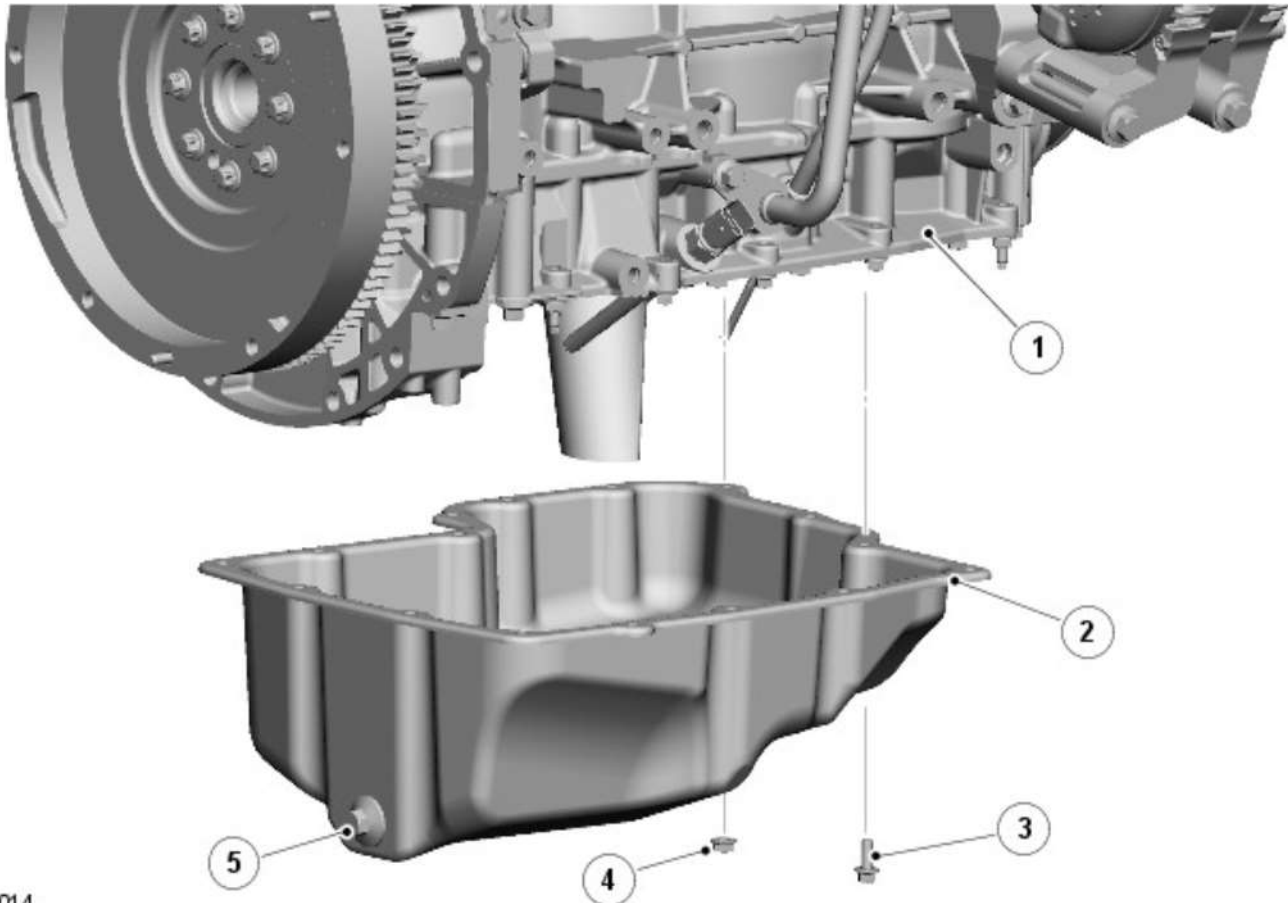
The alignment of the sides of the skirt stiffener with the cylinder block is set using a special tool. The rear face alignment is set using a suitable straight edge.

For additional information, refer to: [Engine](#) (303-01 Engine - ID4 2.2L Diesel, Assembly).

The skirt stiffener is secured to the cylinder block with 22 bolts.

Gaskets seal the joints between the skirt stiffener and the cylinder block.

OIL PAN



E139014

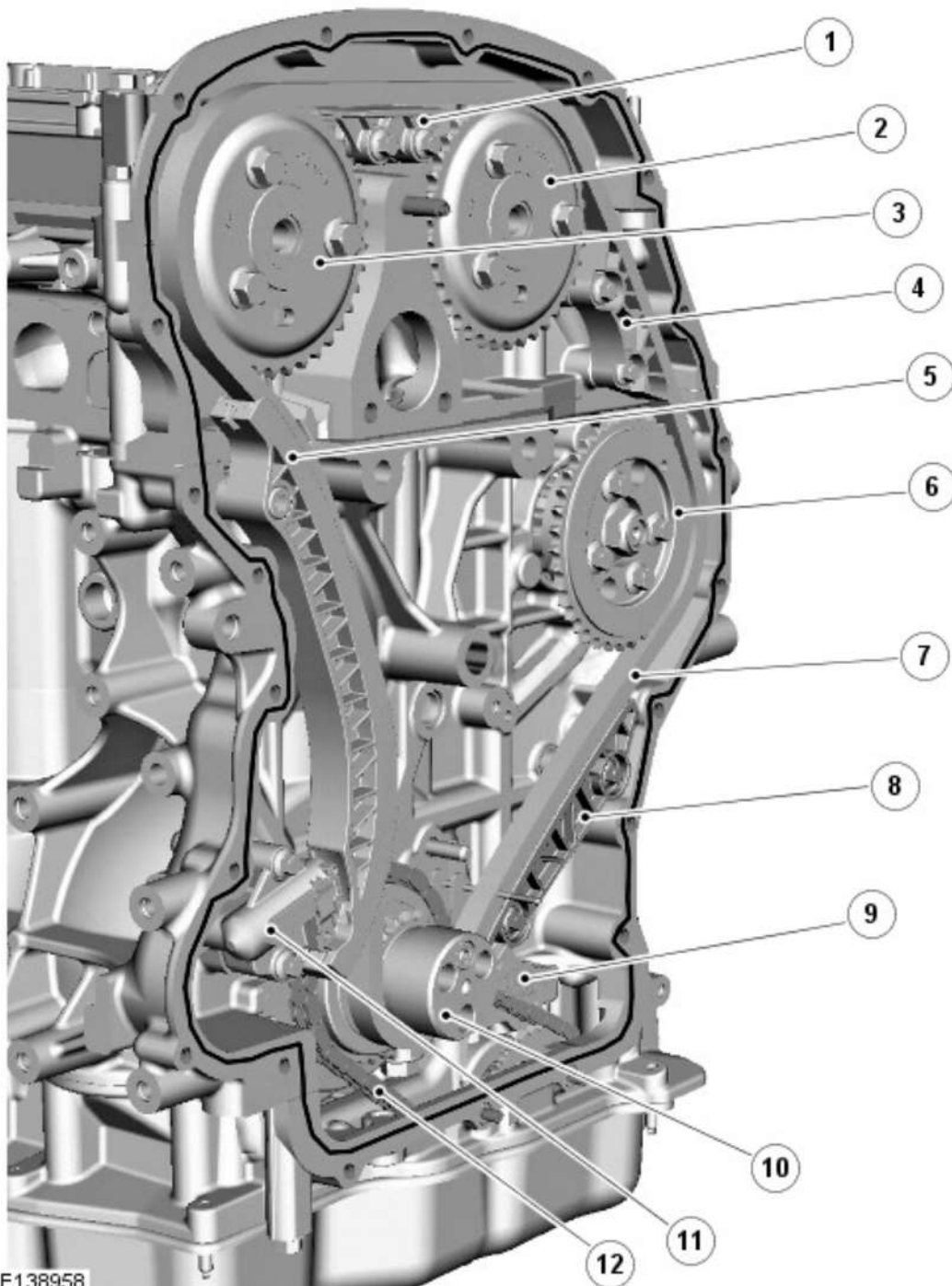
Item	Part Number	Description
1	-	Skirt stiffener
2	-	Oil pan
3	-	Bolt (11 off)
4	-	Nut (5 off)
5	-	Drain plug

The pressed steel oil pan is attached to the skirt stiffener with 11 bolts and 5 nuts. The engine oil drain plug is located in the rear face of the oil pan.

A bead of RTV (room temperature vulcanizing) sealant seals the joint between the oil pan and the skirt stiffener.

CAMSHAFT DRIVE

Drive Gear



E138958

Item	Part Number	Description
1	-	Chain guide
2	-	Inlet camshaft sprocket
3	-	Exhaust camshaft sprocket
4	-	Chain guide
5	-	Tensioner blade
6	-	High-pressure fuel pump sprocket
7	-	Primary drive chain
8	-	Lower chain guide
9	-	Secondary drive chain tensioner
10	-	Crankshaft sprocket
11	-	Hydraulic tensioner
12	-	Secondary drive chain

The primary drive chain transmits the drive from the crankshaft sprocket to the exhaust camshaft, the inlet camshaft and the high-pressure fuel pump. The secondary drive chain transmits drive from the crankshaft sprocket to the oil pump located on the underside of the skirt stiffener.

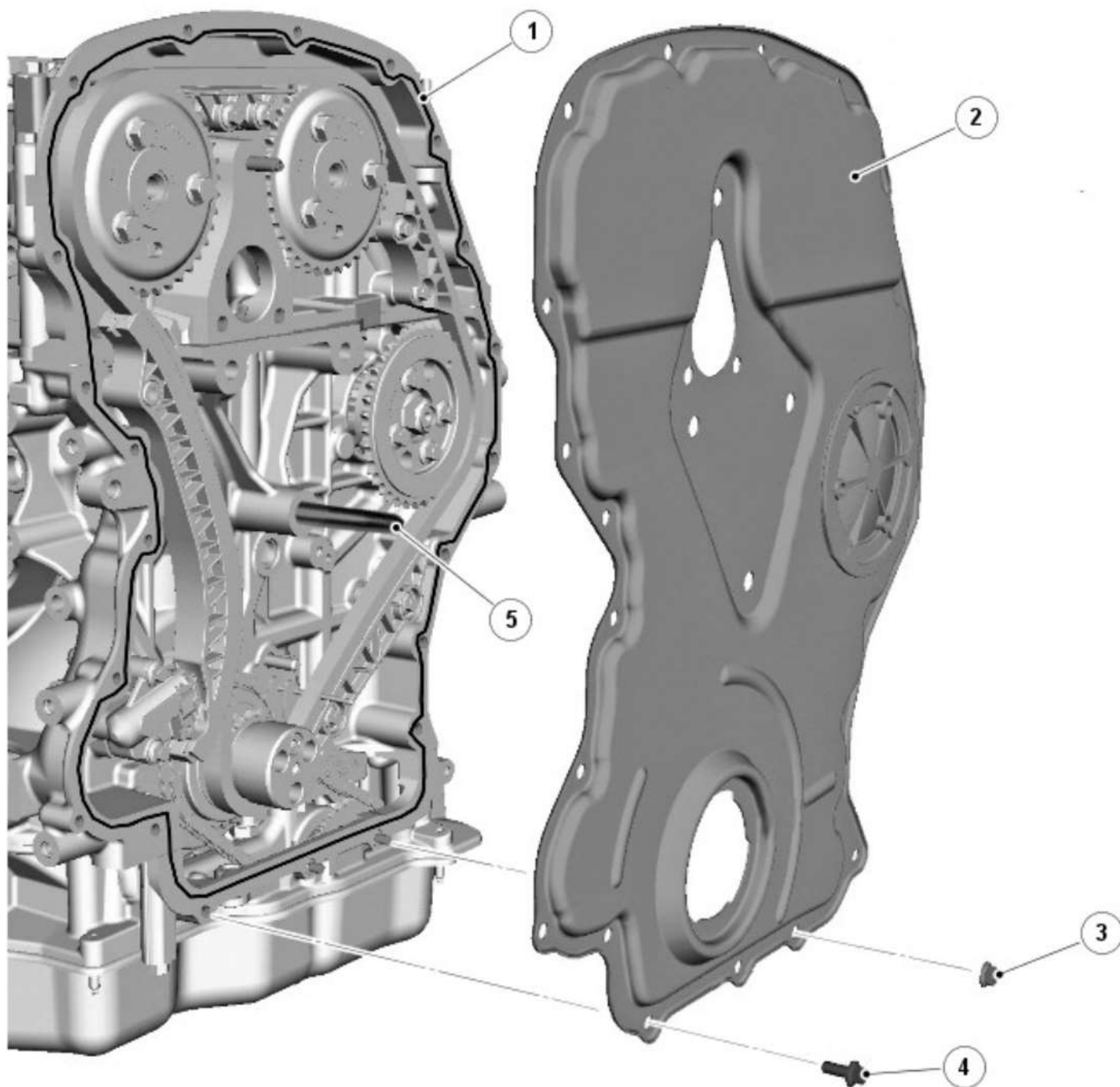
One bolt locates the crankshaft sprocket on the crankshaft, and three bolts are used to attach the engine crankshaft

pulley/ torsional vibration damper to the crankshaft via holes in the crankshaft sprocket. The inlet and exhaust camshaft sprockets are aligned on their respective camshafts using a spigot tool and a timing peg. Once they are in their correct position, three bolts are used to secure each camshaft sprocket to their camshaft.

The primary drive chain has an hydraulic tensioner, operated by engine oil, which acts on a pivoting flexible tensioner blade. Chain guides are installed on the drive side of the primary chain. The primary chain is lubricated via an oil squirt tube located centrally at the front of the engine block.

The secondary chain tensioner is spring operated and acts directly on the chain. The secondary chain is splash lubricated with oil from the skirt stiffener and oil pan assembly.

Front Cover



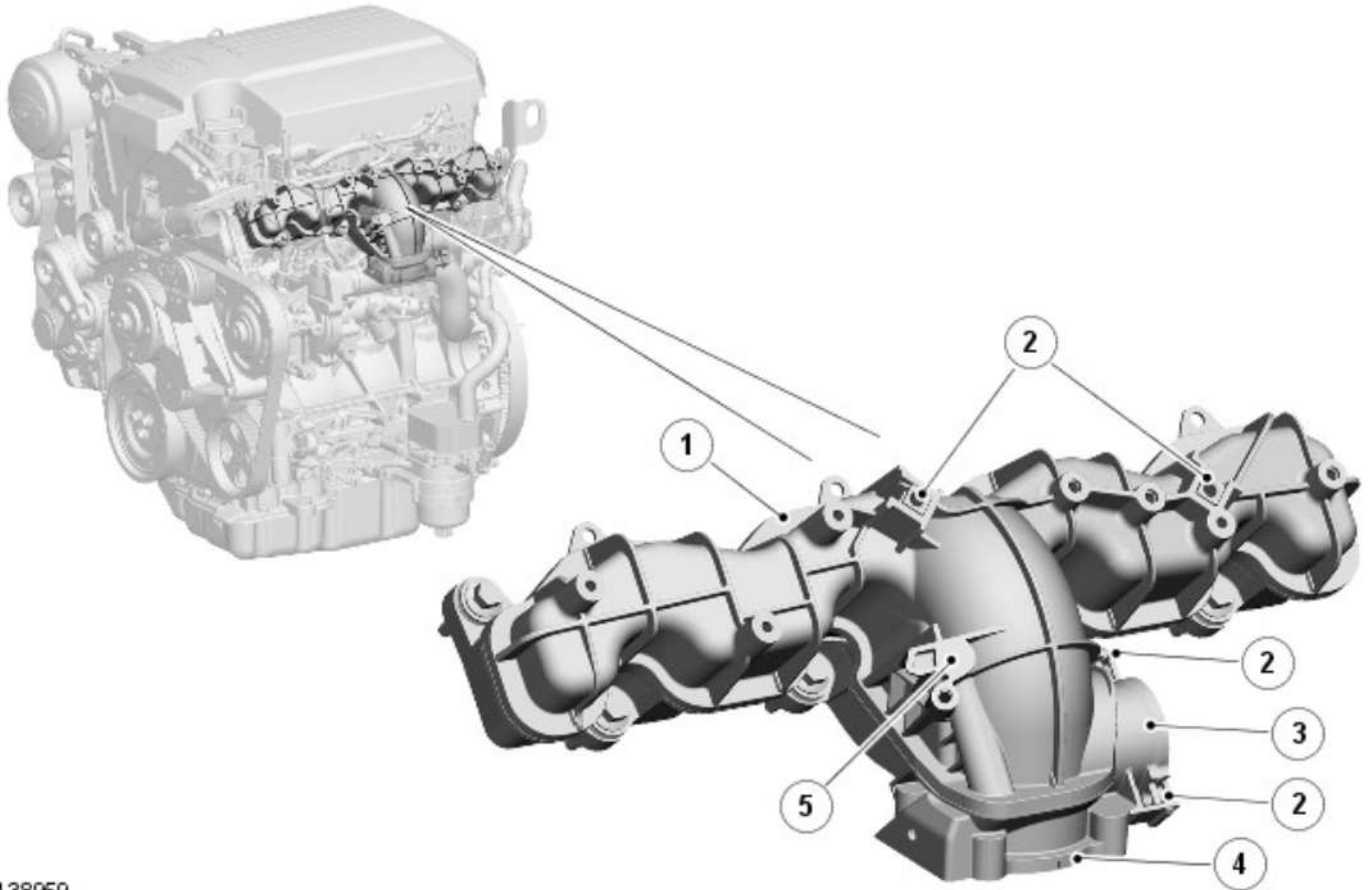
E139013

Item	Part Number	Description
1	-	Sealant bead
2	-	Front cover
3	-	Nut (2 off)
4	-	Bolt (20 off)
5	-	Guide pin

The pressed steel front cover is attached to the front of the cylinder block, the cylinder head and the skirt stiffener with 20 bolts and 2 nuts, and sealed with a bead of RTV silicon sealant.

When installing the front cover, a special locating tool is required, which fits in the crankshaft sprocket aperture, to aid the alignment of the front cover.

INTAKE MANIFOLD



E138959

Item	Part Number	Description
1	-	Intake manifold
2	-	Captive nut
3	-	EGR valve outlet tube mounting boss
4	-	Electronic throttle mounting flange
5	-	MAP (manifold absolute pressure) sensor mounting flange

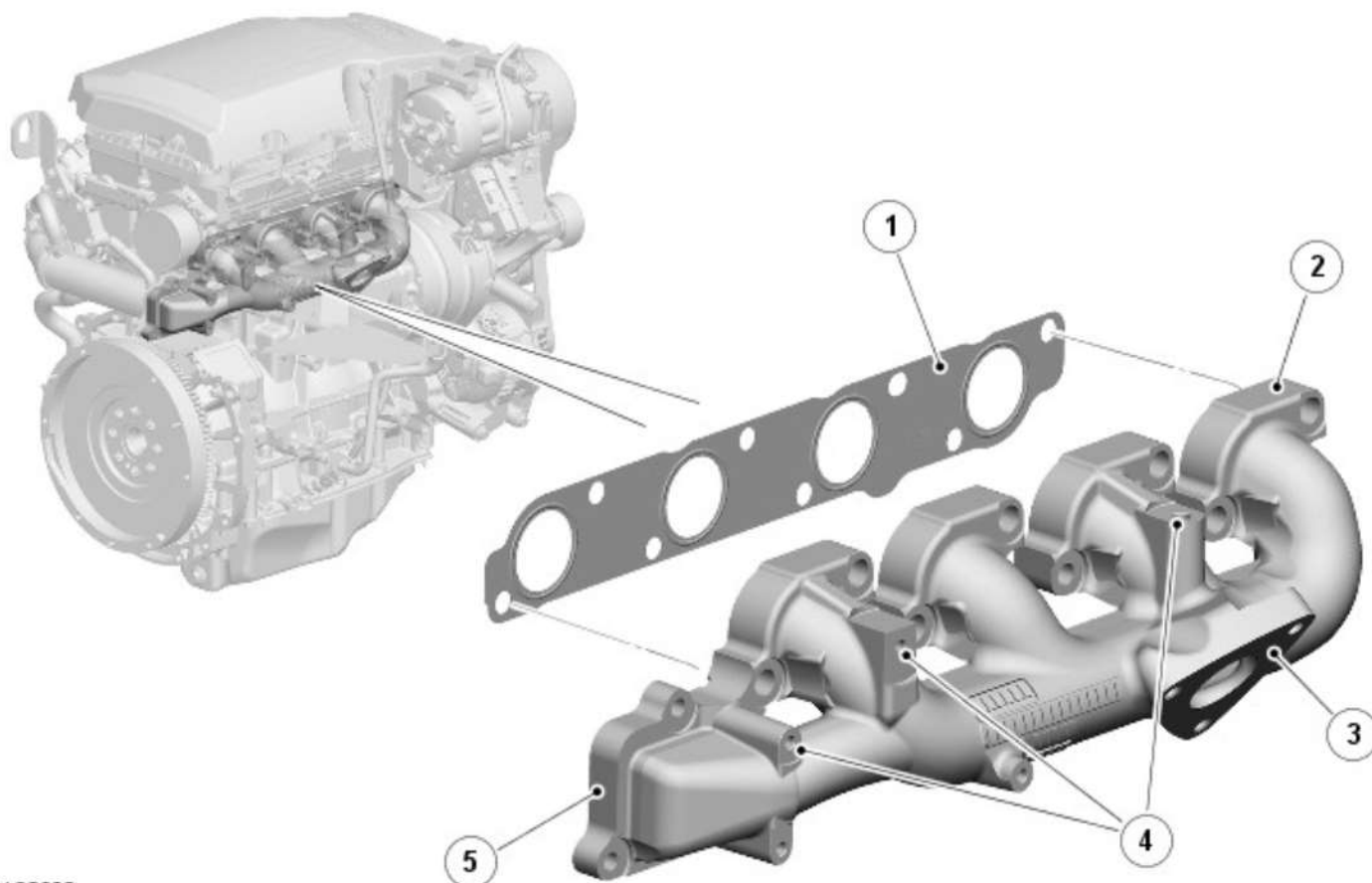
The plastic intake manifold is mounted on the **LH (left-hand)** side of the cylinder head using 9 bolts and isolator bushes. Rubber gaskets, integrated into the manifold, seal the joints between the manifold and the cylinder head.

Mounting flanges on the manifold provide for the attachment of the electronic throttle and the [MAP](#) sensor. For additional information, refer to: [Electronic Engine Controls](#) (303-14 Electronic Engine Controls - ID4 2.2L Diesel, Description and Operation).

A mounting boss on the manifold provides for the attachment of the [EGR](#) valve outlet tube. For additional information, refer to: [Engine Emission Control](#) (303-08 Engine Emission Control - ID4 2.2L Diesel, Description and Operation).

Captive nuts are installed in the manifold for the securing bolts of the [EGR](#) valve outlet tube and a fuel pipe bracket.

EXHAUST MANIFOLD



E138960

Item	Part Number	Description
1	-	Gasket
2	-	Exhaust manifold
3	-	Turbocharger mounting flange
4	-	Heat shield attachment points
5	-	EGR cooler mounting flange

The cast iron exhaust manifold is secured to the **RH (right-hand)** side of the cylinder head using 2 nuts and 6 bolts. A laminated metal gasket seals the manifold to the cylinder head.

A mounting flange towards the front of the manifold is provided for attachment of the turbocharger.

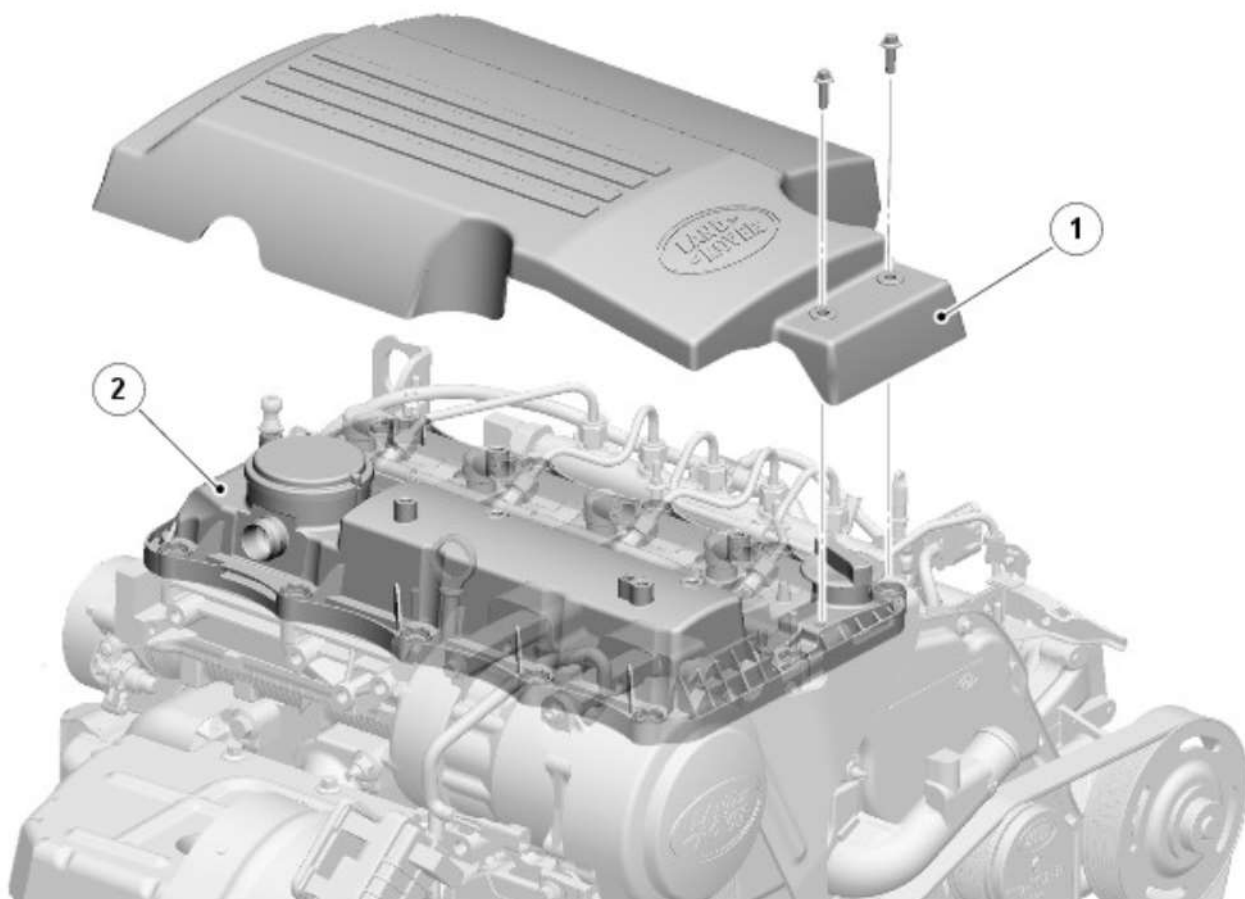
For additional information, refer to: [Turbocharger](#) (303-04B Fuel Charging and Controls - Turbocharger - ID4 2.2L Diesel, Description and Operation).

A second mounting flange, located on the rear of the manifold, is provided for attachment of the [EGR](#) cooler.

For additional information, refer to: [Engine Emission Control](#) (303-08 Engine Emission Control - ID4 2.2L Diesel, Description and Operation).

Tapped holes incorporated into bosses on the manifold provide attachment points for the exhaust heat shields.

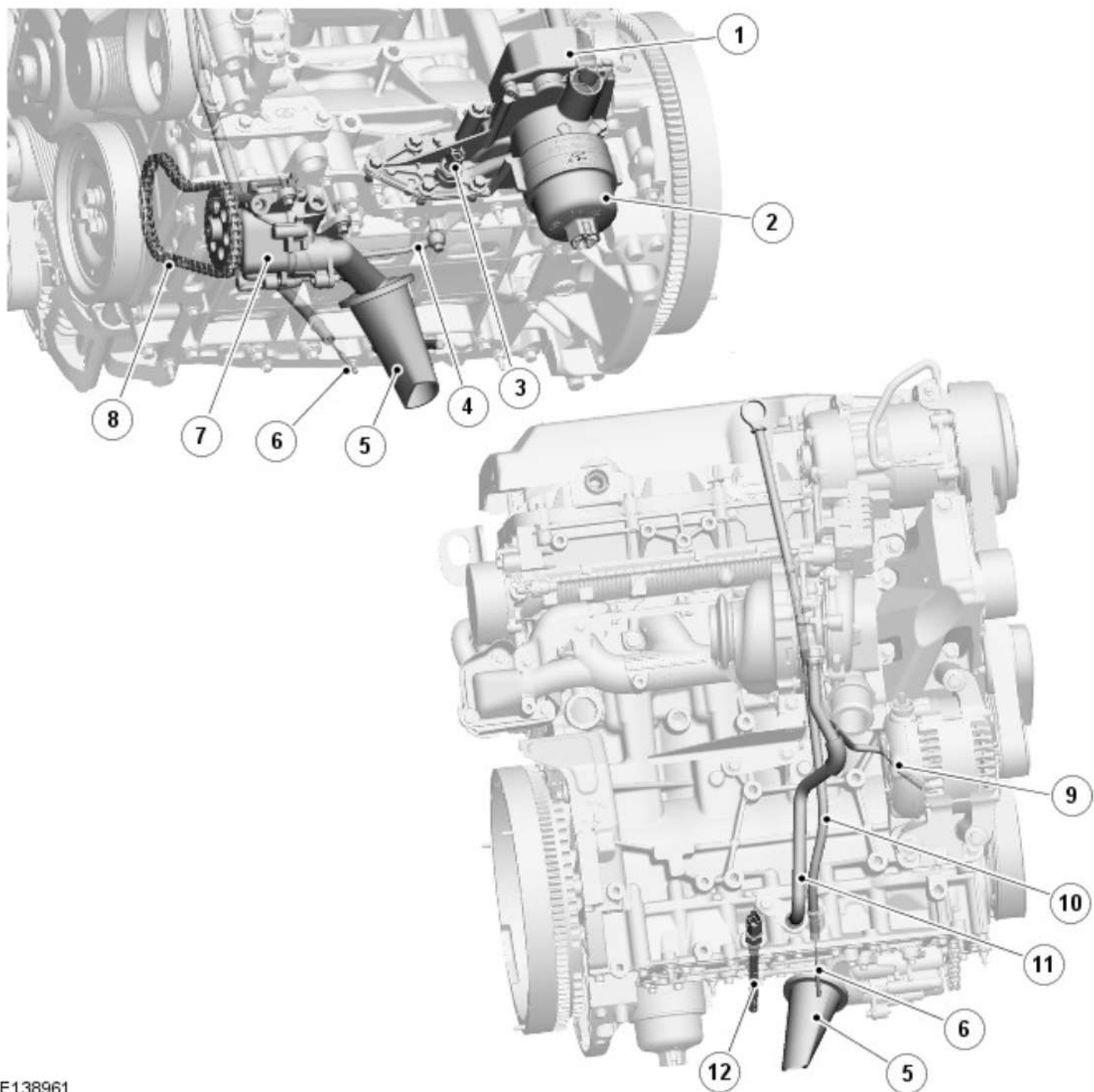
CAMSHAFT COVER AND ENGINE COVER



E138956

Item	Part Number	Description
1	-	Engine cover
2	-	Camshaft cover

LUBRICATION SYSTEM



E138961

Item	Part Number	Description
1	-	Oil cooler
2	-	Oil filter
3	-	Oil pressure switch
4	-	Feedback tube
5	-	Oil pick-up tube
6	-	Dipstick
7	-	Oil pump
8	-	Secondary drive chain
9	-	Turbocharger oil feed tube
10	-	Dipstick outer tube
11	-	Turbocharger oil drain tube
12	-	Oil temperature/low level sensor

The engine is lubricated by a forced feed oil circulation system. The main components of the system are:

- Oil pick-up
- Oil pump
- Oil filter and cooler assembly.

Oil Pick-up

The plastic oil pick-up is immersed in the oil reservoir to provide a supply to the oil pump at all normal vehicle attitudes. A mesh screen in the inlet prevents debris from entering the oil system.

Oil Pump

The oil pump is located on the LH front underside of the skirt stiffener and is secured by 4 bolts. The unit is a spur gear pump driven by the crankshaft sprocket via the secondary drive chain. An integral pressure relief valve diverts oil back to the inlet side of the pump to limit the pump outlet pressure.

Oil Filter and Cooler Assembly

The oil filter and cooler assembly is attached to the LH side of the skirt stiffener and consists a full-flow, disposable canister-type filter and an oil cooler attached to a casting. The casting aligns with the oil galleries in the skirt stiffener and is sealed by a gasket.

The engine cooling system cools the oil in the oil cooler and is regulated by means of a separate thermostat, which prevents the flow of coolant through the oil cooler when the engine is cold, ensuring the engine oil warms up quickly. The thermostat opens at 75 ± 2 °C (167 ± 35 °F).

Oil to and from the oil cooler passes through galleries in the skirt stiffener. Hoses from the engine cooling system are connected to 2 pipes on the oil cooler for the supply and return of coolant.

An oil pressure switch is located in the casting to sense the pressure of the oil as it leaves the oil filter and cooler assembly. A warning lamp in the instrument cluster illuminates if low oil pressure is detected.

For additional information, refer to: [Instrument Cluster](#) (413-01 Instrument Cluster, Description and Operation).

Lubrication System Operation

Oil is drawn through the oil pick-up into the oil pump, then supplied to the oil filter and cooler assembly through the oil galleries in the skirt stiffener. After passing through the filter, a proportion of the oil (controlled by a restrictor in the oil filter housing) passes through the oil cooler. The return flow from the oil cooler combines with the remainder of the oil from the filter, then passes through the skirt stiffener into the cylinder block main oil gallery.

The main oil gallery has drillings that direct the oil to the cylinder head and the main bearings. Cross drillings in the crankshaft main bearings carry the oil to the connecting rod big-end bearings. Oil galleries in the cylinder head carry the oil to the camshafts and the hydraulic lash adjusters.

Oil at reduced pressure is directed towards the cylinder head via a restrictor in the cylinder block/cylinder head locating dowel. Oil then passes through a drilling in the cylinder head to the camshaft carrier, where it is directed via separate galleries to the camshaft bearings and hydraulic tappet housings. Return oil from the cylinder head drains into the sump via the cylinder head bolt passages.

Engine - ID4 2.2L Diesel - Engine

Diagnosis and Testing

Overview

As diagnosis of the different areas of the engine is covered in other sections and by general procedures, this section is limited to an oil pressure test.

For specific areas of the engine, refer to the general procedures in this section and the relevant section of the manual.

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection Chart

Mechanical	Electrical
<ul style="list-style-type: none"> ● Engine oil level ● Coolant level ● Transmission fluid level ● Fuel level ● Coolant leaks ● Oil leaks ● Fuel leaks ● Visibly damaged or worn parts ● Loose or missing nuts or bolts ● Fuel contamination/grade/quality ● Sensor fitment/condition ● Viscous fan and solenoid ● Routing of pipework etc. to avoid vibrations ● Contact anywhere between the driveline and chassis 	<ul style="list-style-type: none"> ● Fuses ● Wiring harness ● Electrical connector(s) ● Injectors ● Glow plugs ● 5 volt sensor supply ● Sensor(s) ● Viscous fan solenoid ● Engine control module (ECM)

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. Use the approved diagnostic system or a scan tool to retrieve any diagnostic trouble codes (DTCs) before moving onto the symptom chart or DTC index.

Oil Pressure Check

NOTE: Prior to checking the engine oil pressure, a road test of 6 miles (10 kilometres), must be carried out. Do not attempt to attain engine normal operating temperature by allowing the engine to idle.

1. WARNINGS:



The spilling of hot engine oil is unavoidable during this procedure, care must be taken to prevent scalding. Failure to follow this instruction may result in personal injury.

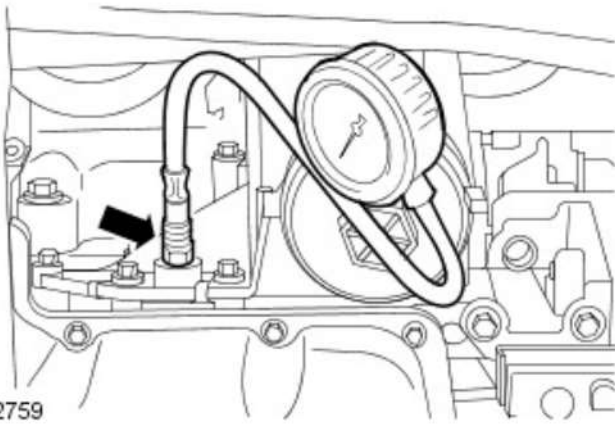


Wear protective gloves.

Remove the oil pressure sensor.

REFER to: [Engine Oil Pressure \(EOP\) Sensor](#) (303-14 Electronic Engine Controls - ID4 2.2L Diesel, Removal and Installation).

2. Install the oil pressure gauge and the oil pressure gauge connector.



E92759

3. Check and top-up the engine oil, if required.
4. Start and run the engine.
5. Note the oil pressure readings with the engine running at idle and at 2,000 rpm.
REFER to: [Specifications](#) (303-01 Engine - ID4 2.2L Diesel, Specifications).
6. Turn off the engine.
7. Remove the special tools.
8. Install the oil pressure sensor.
REFER to: [Engine Oil Pressure \(EOP\) Sensor](#) (303-14 Electronic Engine Controls - ID4 2.2L Diesel, Removal and Installation).
9. Check and top-up the engine oil, if required.

For a complete list of all diagnostic trouble codes that could be logged on this vehicle, please refer to Section 100-00.
REFER to: [How To Use This Manual](#) (100-00 General Information, Description and Operation).

Engine - ID4 2.2L Diesel - Engine Oil Draining and Filling

General Procedures

1.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

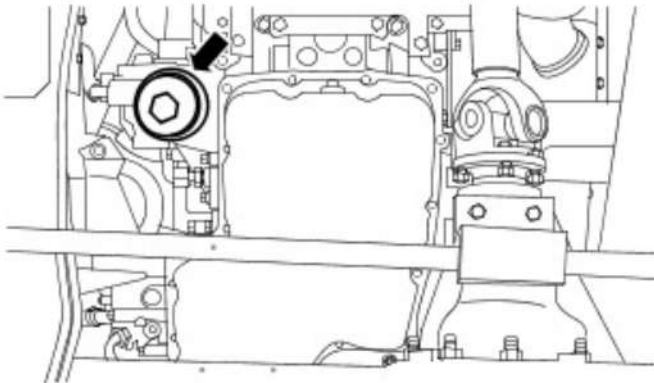
Raise and support the vehicle.

For additional information, refer to: Lifting (100-02, Description and Operation).

2. Loosen the oil filter cover 3 turns and allow the engine oil to drain.

3. **NOTE:** Position cloth to collect fluid spillage.

Remove the oil filter cover and oil filter element.



E90315

4. Remove and discard the oil filter element.

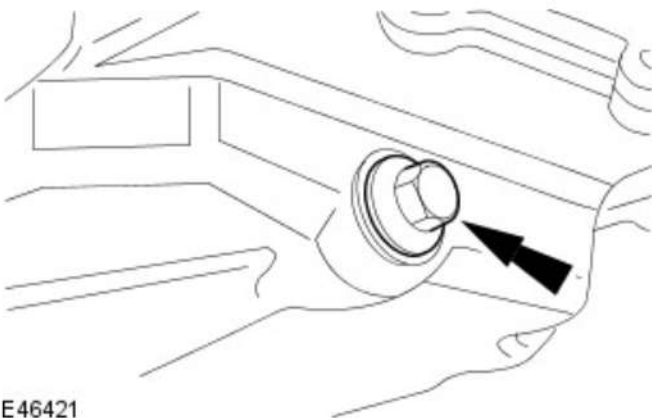
- Remove and discard the oil filter cover O-ring seal.



E90316

5. Drain the engine oil.

- Position a container to collect the engine oil.
- Remove and discard the drain plug.
- Allow the engine oil to drain.



E46421

6. Install a new drain plug.

- Clean the component mating faces.
- Tighten the drain plug to 23 Nm (17 lb.ft).
- Remove the container.

7. Install a new oil filter cover O-ring seal.

- Clean the components.
- Lubricate the O-ring seal with clean engine oil.


8. Install a new oil filter element to the oil filter cover.
9. Install the oil filter cover and oil filter element.
 - Tighten the oil filter cover to 35 Nm (26 lb.ft).
10. Fill the engine with the recommended oil to the correct level.
11. Connect the battery ground cable.
For additional information, refer to: Battery Connect (414-01, General Procedures).
12. Check and top-up the engine oil.

Content not found

Engine - ID4 2.2L Diesel - Crankshaft Pulley

Removal and Installation

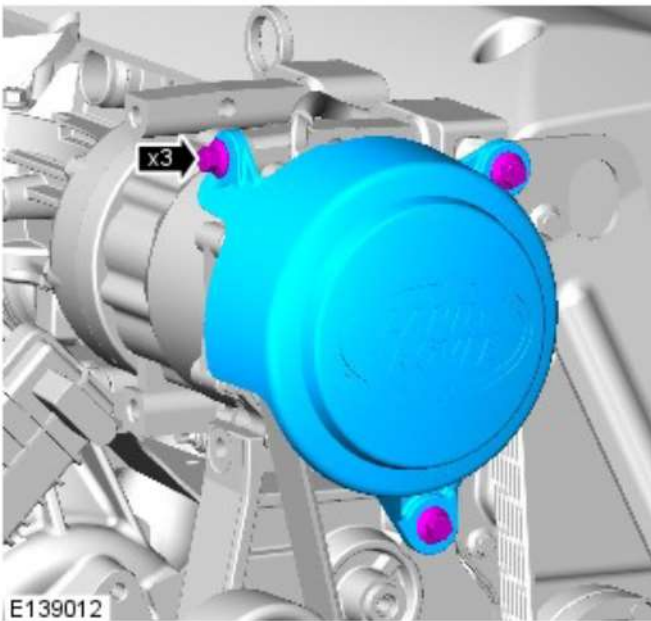
Special Tool(s)

 <p>E87614</p>	<p>Aligner, Engine Front Cover 303-1310</p>
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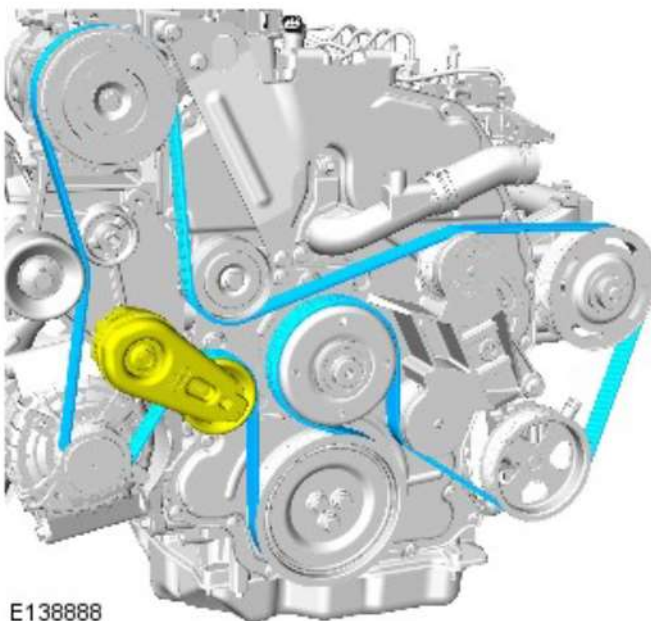
Removal

1. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
2. For additional information, refer to: [Cooling Fan](#) (303-03 Engine Cooling - ID4 2.2L Diesel, Removal and Installation).

3. Torque: 10Nm



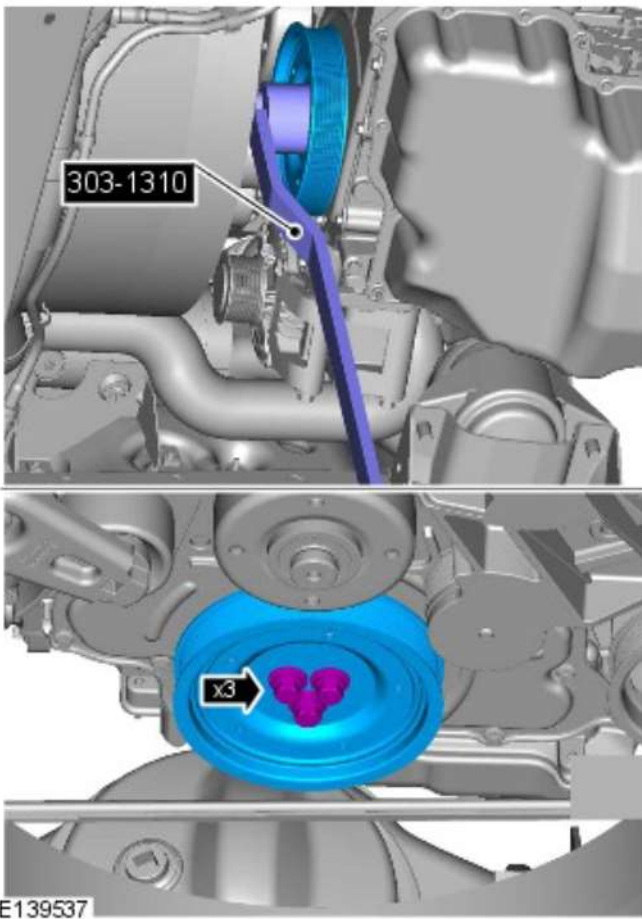
4.



5. NOTE: Apply the foot and hand brake, select 1st gear to prevent crankshaft rotation.

Torque:

1. Stage : Run down 3 bolts to 20Nm
2. Stage : Run down 3 bolts to 45Nm
3. Stage : Run down 3 bolts to 90Nm
4. Stage : Turn on all 45degrees
5. Stage : Turn on all 45degrees



E139537

Installation

1. To install, reverse to removal procedure.


Engine - ID4 2.2L Diesel - Crankshaft Front Seal

Removal and Installation

Special Tool(s)

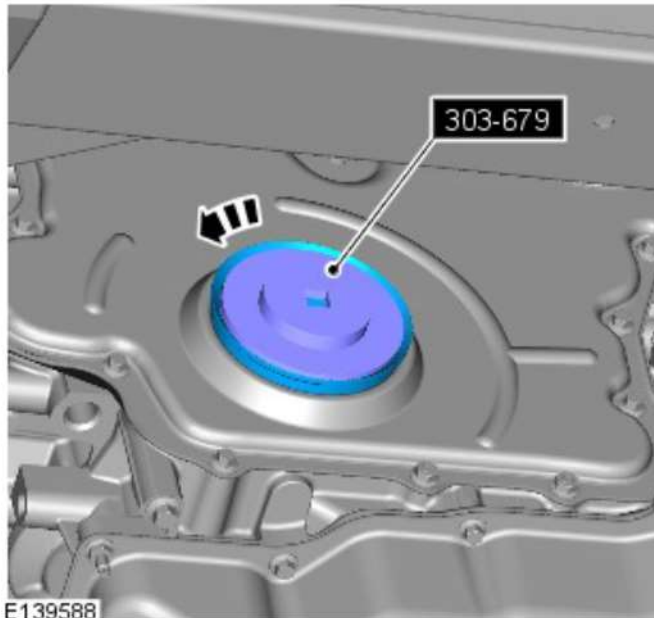
 <p>303679</p>	<p>Remover/Installer,Front Oil Seal</p> <p>303-679</p>
--	--


Removal

1.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

2. For additional information, refer to: [Crankshaft Pulley](#) (303-01 Engine - ID4 2.2L Diesel, Removal and Installation).



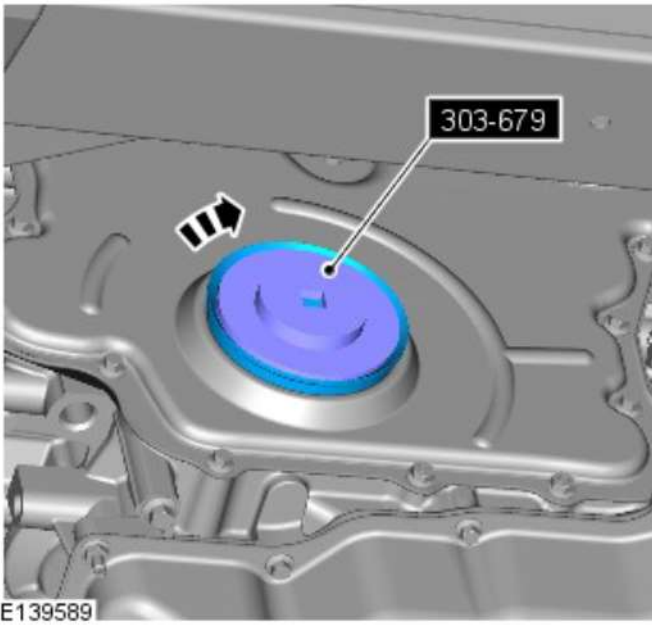
3.  **CAUTION:** Make sure the mating faces are clean, before the sealant is applied.

NOTE: A new crankshaft front oil seal is supplied with an alignment sleeve that will be pushed out during installation.

Tool: 303-679 (Remover/Installer,Front Oil Seal)

Installation

1. Tool: 303-679 (Remover/Installer,Front Oil Seal)



E139589

2. To install, reverse to removal procedure.

Engine - ID4 2.2L Diesel - Crankshaft Rear Seal

Removal and Installation

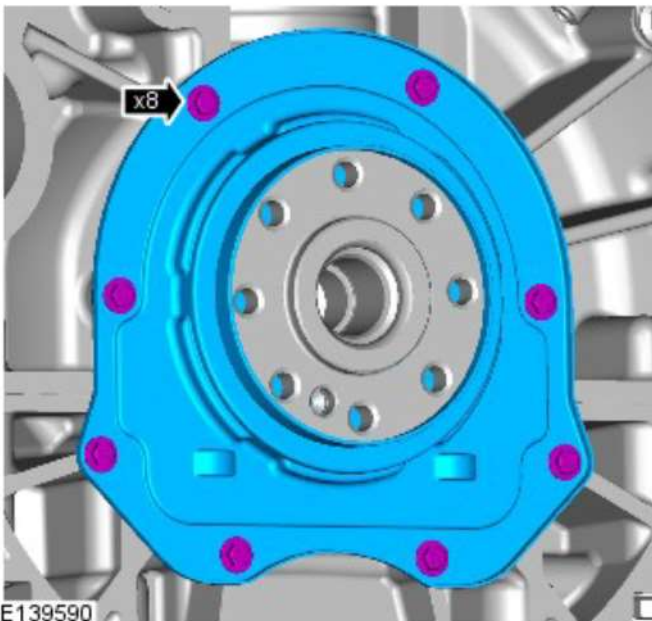
Removal

1. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
2. For additional information, refer to: [Flywheel](#) (303-01 Engine - ID4 2.2L Diesel, Removal and Installation).

3.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

4.



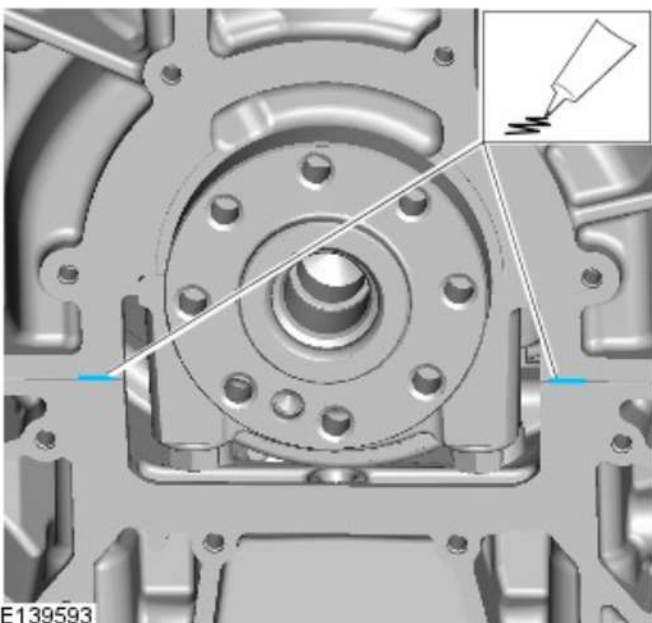
Installation

1. **NOTE:** Clean the component mating faces.

Check the 2 foam pads are located on the ladder frame gasket.

If the ladder frame gasket tabs are present, trim using a suitable tool flush to the engine block and ladder frame.

Apply a thin layer of sealant to the areas shown.



2. **CAUTIONS:**

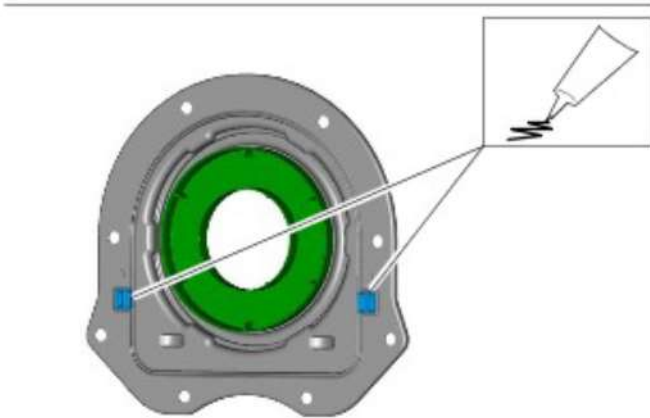


⚠ A new crankshaft rear seal is supplied with an alignment sleeve that must not be removed until the crankshaft rear seal is fully installed. Failure to follow this instruction may result in damage to the vehicle.

⚠ Install the new crankshaft rear seal within five minutes of applying the recommended sealant.

⚠ Do not add the sealant anywhere other than the area shown.

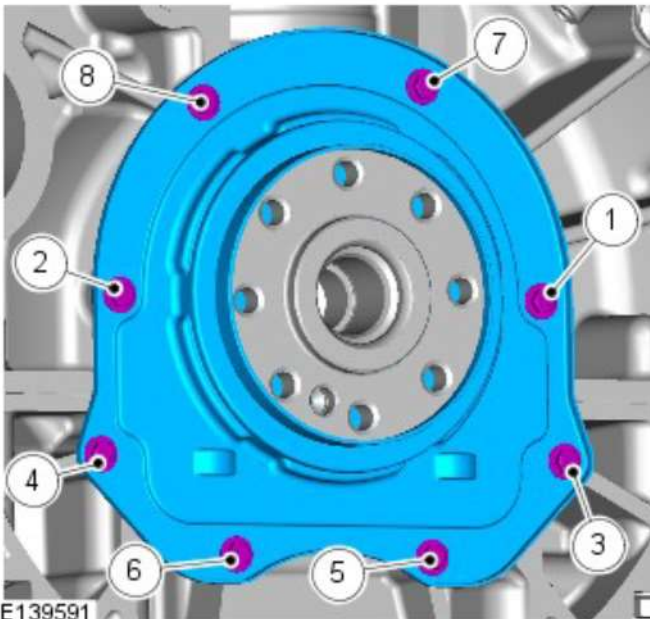
Using the recommended sealant completely fill the square areas shown.
For additional information, refer to: [Specifications](#) (303-01 Engine - ID4 2.2L Diesel, Specifications).



E139592

3. Torque:

1. Stage : Hand start all bolts and tighten to 5Nm
2. Stage : Tighten the bolts to 9.5Nm in below sequence
3. Stage: Repeat to 9.5 Nm below sequence



E139591


4. Remove and discard the seal alignment sleeve.

5. To install, reverse the removal procedure.

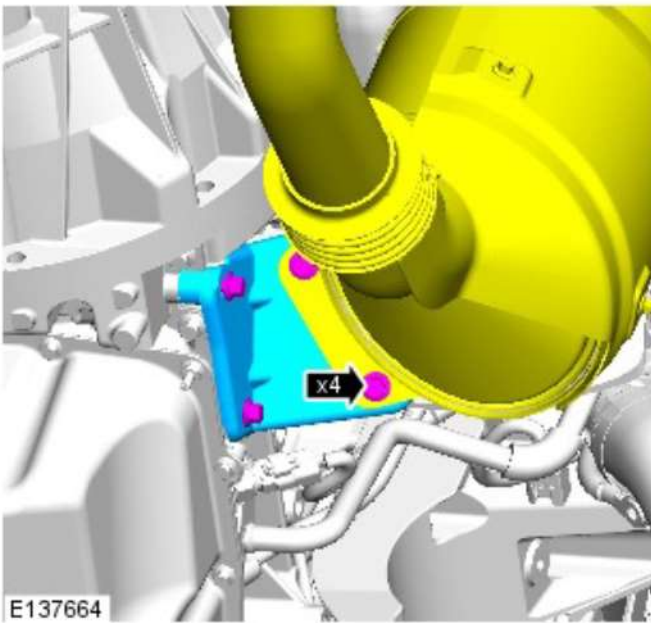
Engine - ID4 2.2L Diesel - Cylinder Head

Removal and Installation

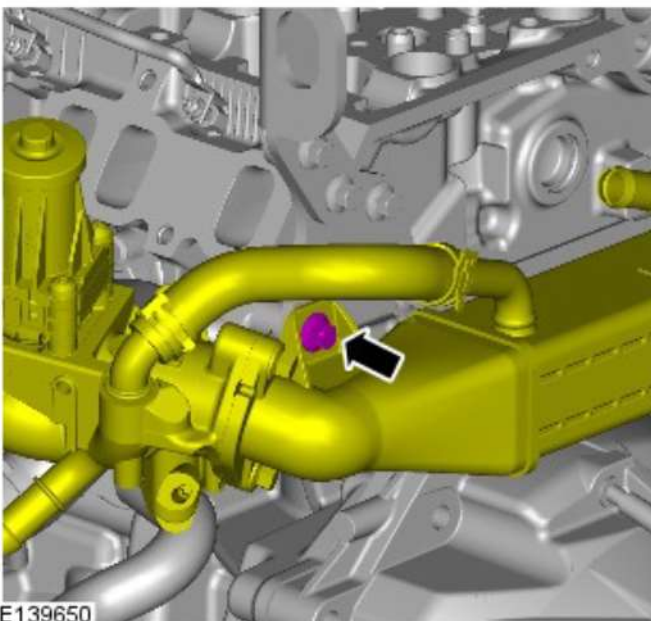
Removal

1.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.
Raise and support the vehicle.
2. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
3. For additional information, refer to: [Camshafts](#) (303-01 Engine - ID4 2.2L Diesel, Removal and Installation).
4. For additional information, refer to: [Intake Manifold](#) (303-01 Engine - ID4 2.2L Diesel, Removal and Installation).

5. Torque: 30Nm

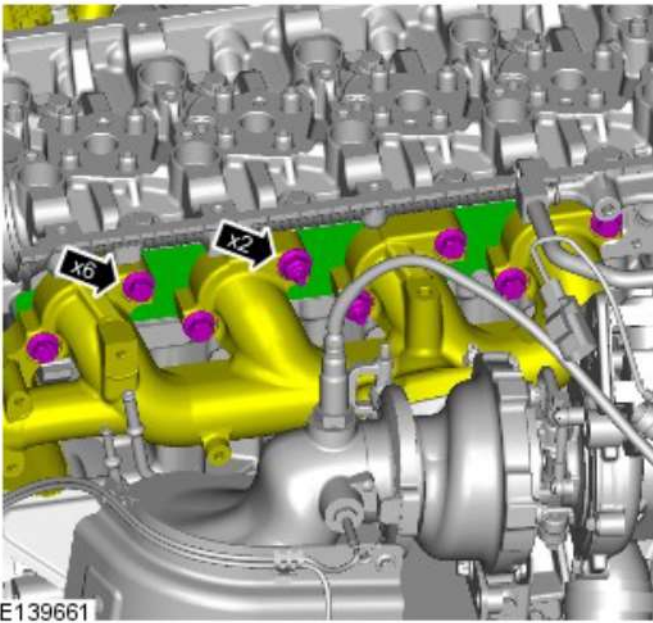


6. Torque: 25Nm

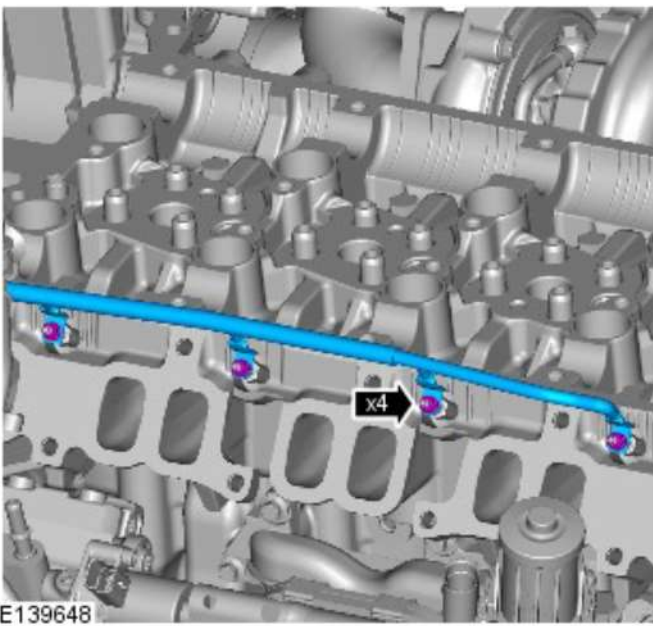


7.
 1. Stage 1: Tighten the M10 bolts and nuts to 15 Nm (11 lb.ft).

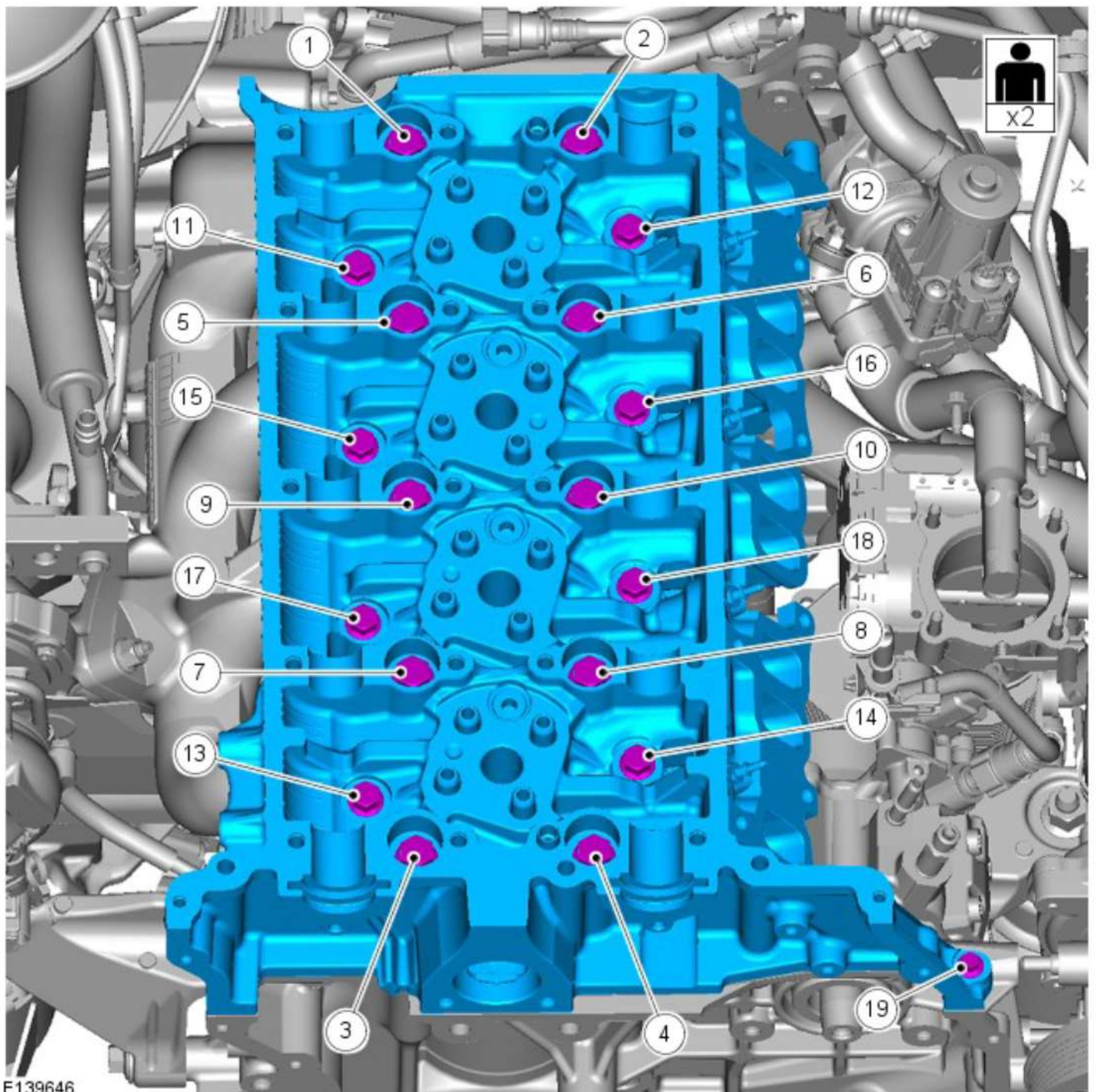
2. Stage 2: Tighten the M10 bolts and nuts to 35 Nm (26 lb.ft).



8. Torque: 3Nm



9.

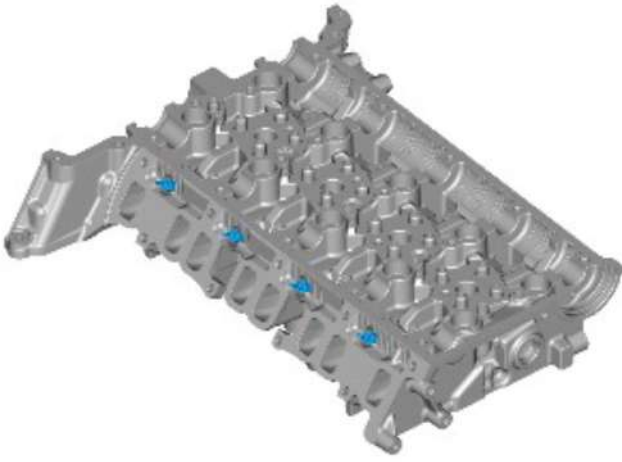


E139646

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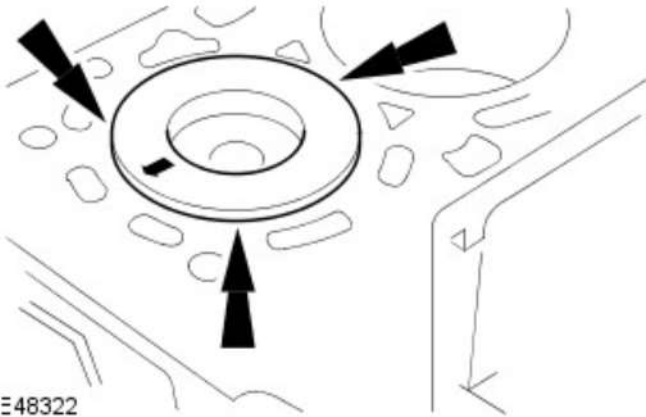
10. NOTE: Do not disassemble further if the component is removed for access only.

Torque: 13Nm




E139649

Installation



E48322

1.  CAUTION: Make sure that the mating faces are clean and free from foreign material.


NOTE: Measure the piston protrusion of each cylinder at top dead center (TDC).

Measure the distance between the piston crown and the cylinder block at the points indicated.

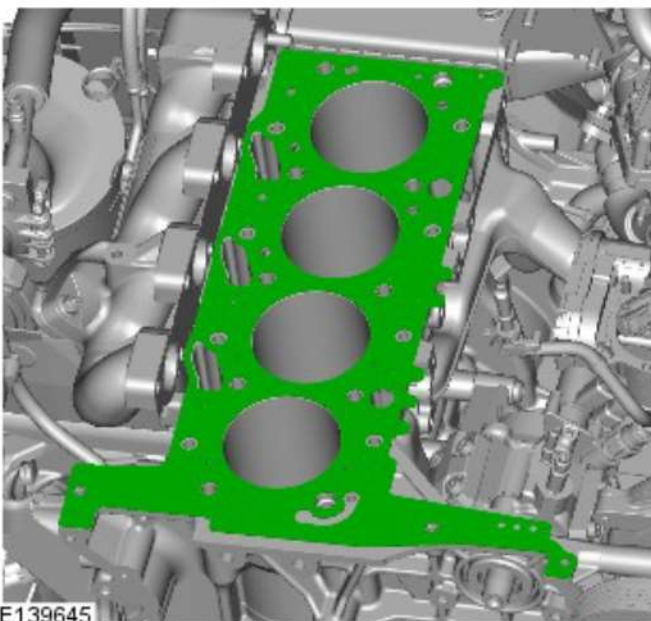
2. Determine the cylinder head gasket thickness.
For additional information, refer to: [Specifications](#) (303-01 Engine - ID4 2.2L Diesel, Specifications).

3. CAUTIONS:


 The thickness of the new cylinder head gasket depends on the piston protrusion (hole/tooth marked).

 Make sure that the mating faces are clean and free from foreign material.

Fit new cylinder head gasket, dry, to cylinder block.



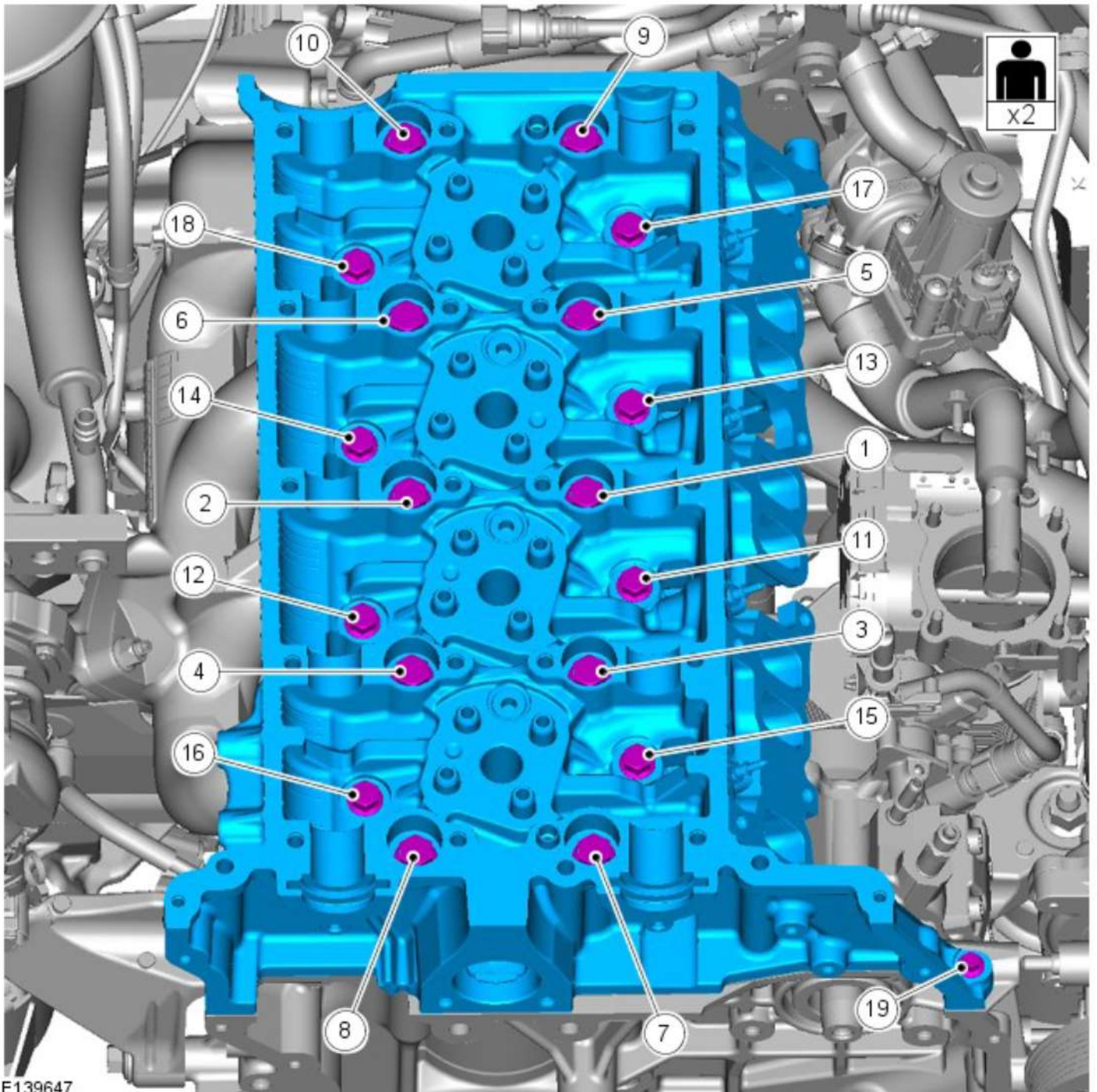
E139645

4.  CAUTION: Make sure that the mating faces are clean and free from foreign material.

NOTE: New bolts must be installed.

With assistance, install the cylinder head.

1. Stage 1: Tighten bolts 1 through 10 to 10Nm.
2. Stage 2: Tighten bolts 11 through 18 to 5Nm.
3. Stage 3: Tighten bolts 1 through 10 to 20Nm.
4. Stage 4: Tighten bolts 11 through 18 to 10Nm.
5. Stage 5: Tighten bolts 1 through 10 to 35Nm.
6. Stage 6: Tighten bolts 11 through 18 to 20Nm.
7. Stage 7: Tighten bolts 1 through 10 to 45Nm.
8. Stage 8: Tighten bolts 11 through 18 to 26Nm.
9. Stage 9: Tighten bolts 1 through 10 to 90 degrees.
10. Stage 10: Tighten bolts 11 through 18 to 90 degrees.
11. Stage 11: Tighten the M6 bolt to 10Nm (7 lb.ft).



E139647

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5. To install, reverse to removal procedure.

Engine - ID4 2.2L Diesel - Engine Mount LH

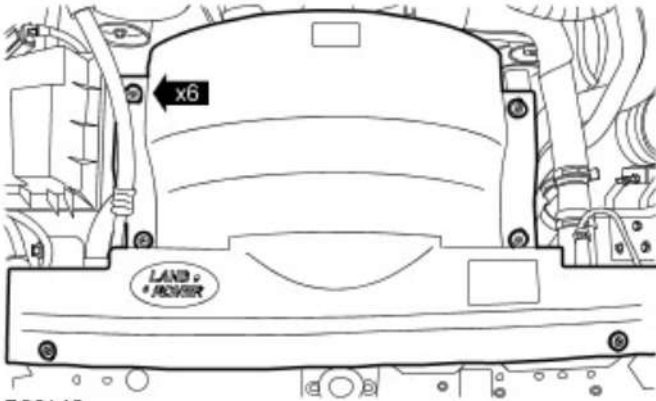
Removal and Installation

Removal

NOTE: Some variation in the illustrations may occur, but the essential information is always correct.

1. Disconnect the battery ground cable. For additional information, refer to:
For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

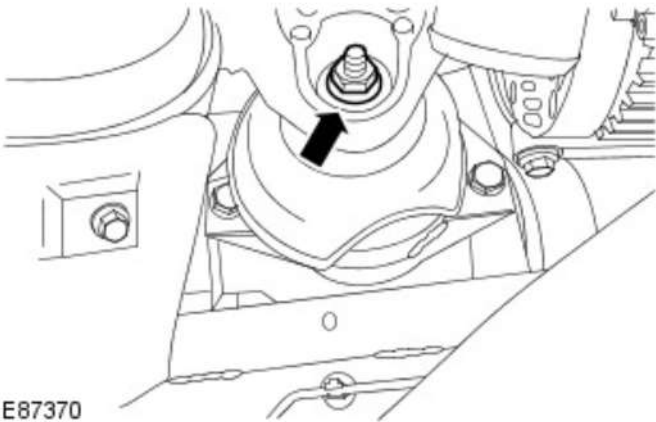
2. 3. Remove the cooling fan upper shroud.



E86148

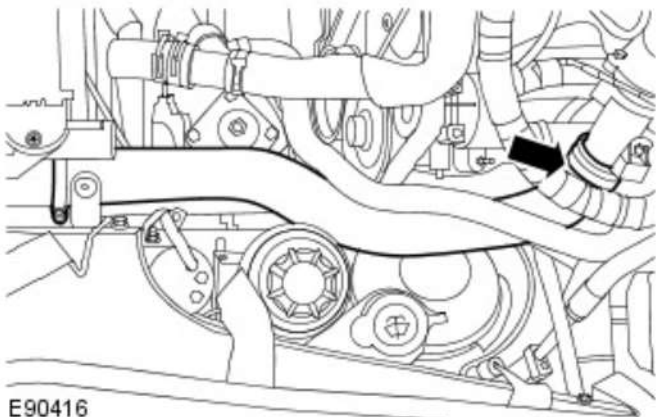
3. Remove the air cleaner outlet pipe. For additional information, refer to:
For additional information, refer to: [Air Cleaner Outlet Pipe](#) (303-12 Intake Air Distribution and Filtering - ID4 2.2L Diesel, Removal and Installation).

4. Remove the RH engine mount nut.



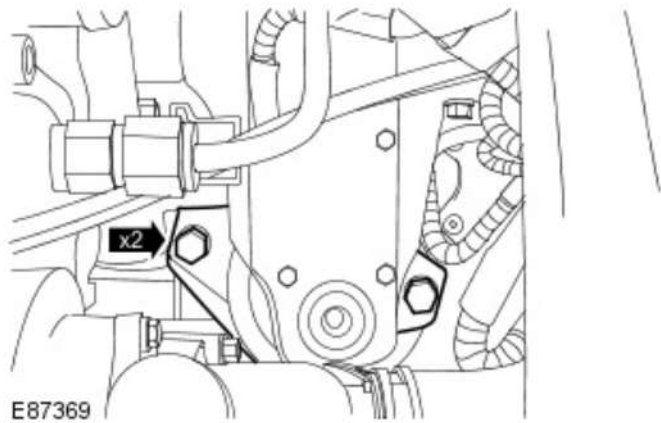
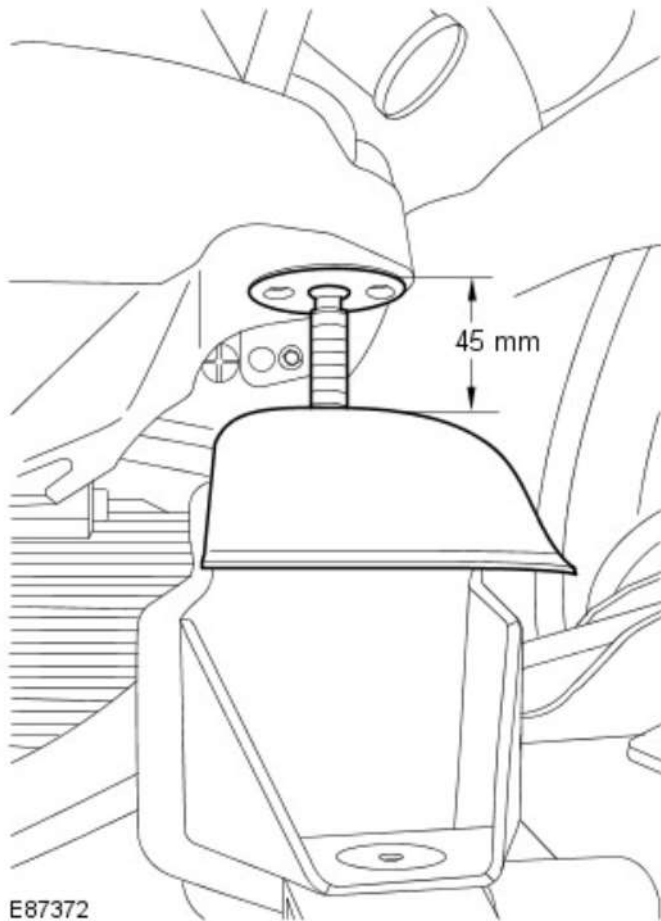
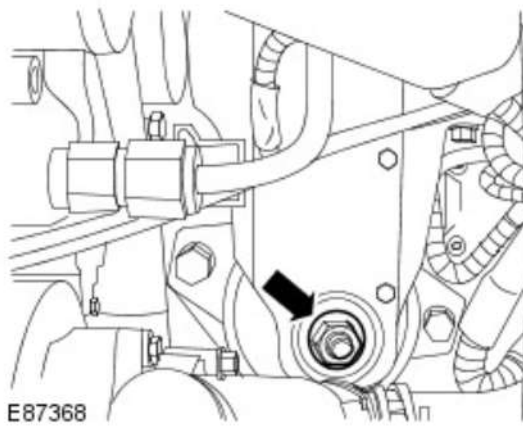
E87370

5. Disconnect the charher air cooler outlet hose.



E90416

6. Remove the RH engine mount nut.



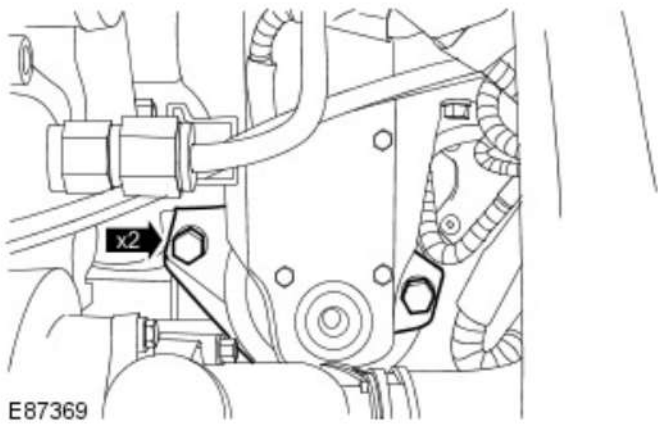
6. Remove the LH engine mount.

7. Using a suitable hydraulic jack, raise the engine to a maximum of 45 mm (1.77 inches).

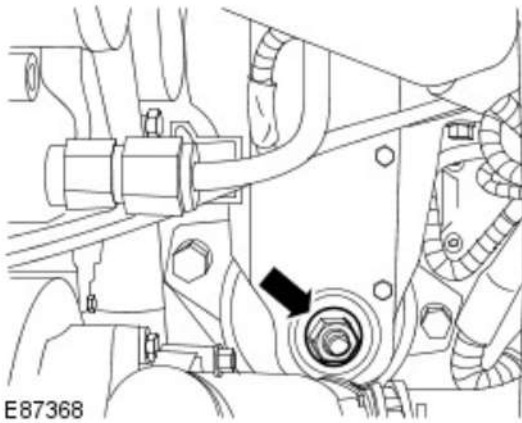
8. Remove the LH engine mount.

Installation

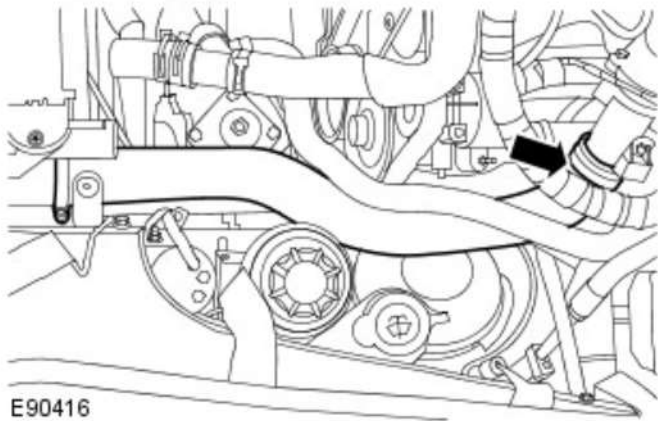
1. To install, reverse the removal procedure.
2. Tighten to 80 Nm (59 lb.ft).



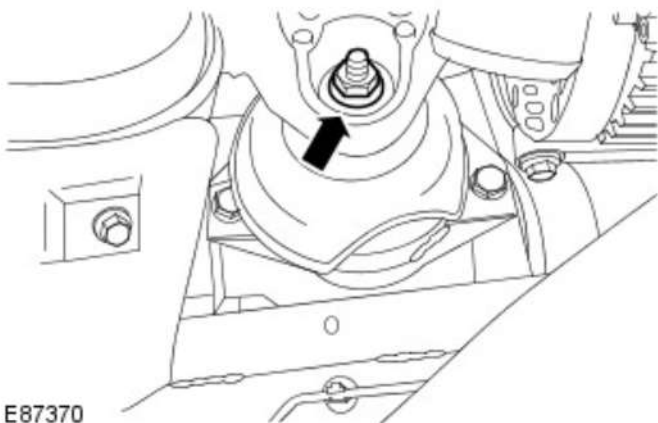
2. Tighten to 80 Nm (59 lb.ft).



3. Tighten to 80 Nm (59 lb.ft).



4. Tighten to 3 Nm (2 lb.ft).



5. Tighten to 80 Nm (59 lb.ft).

Engine - ID4 2.2L Diesel - Engine Mount RH

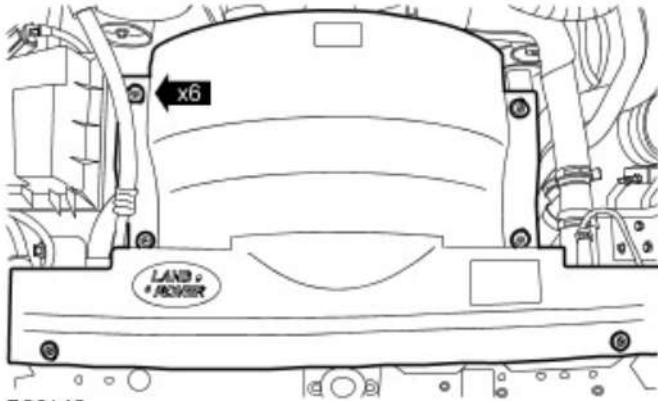
Removal and Installation

Removal

NOTE: Some variation in the illustrations may occur, but the essential information is always correct.

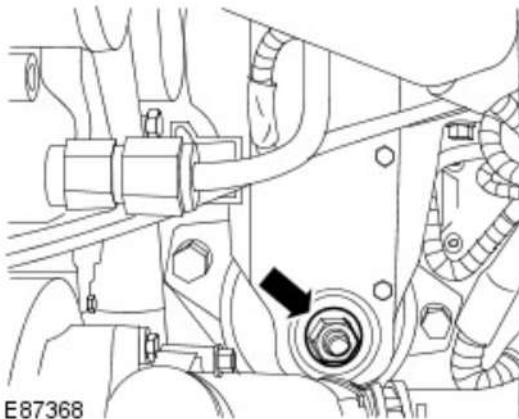
1. Disconnect the battery ground cable. For additional information, refer to:
For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

2. 3. Remove the cooling fan upper shroud.



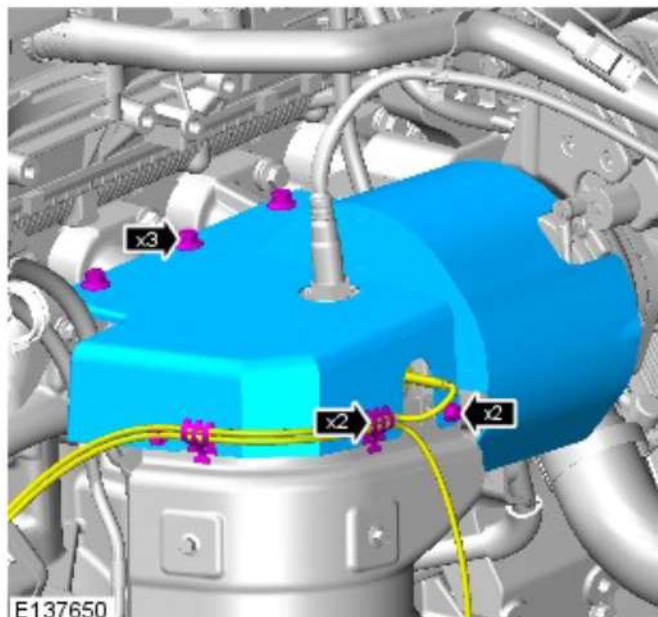
E86148

3. Remove the LH engine mount nut.



E87368

4. Remove the turbocharger heat shield.



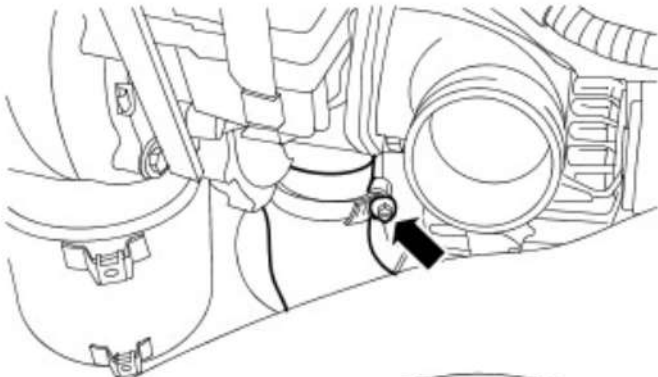
E137650

5. Remove the air cleaner outlet pipe. For additional information, refer

to:

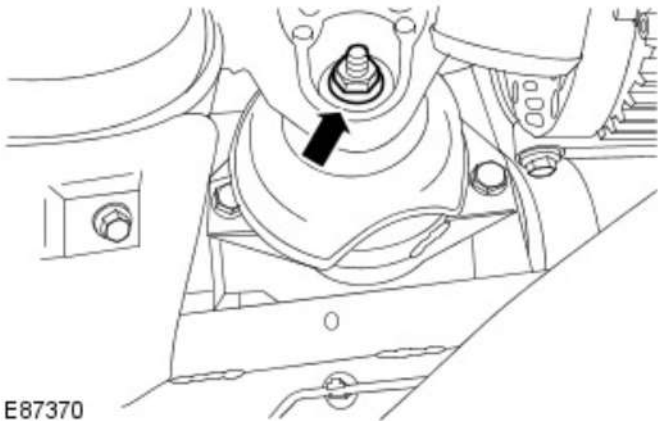
For additional information, refer to: [Air Cleaner Outlet Pipe](#) (303-12 Intake Air Distribution and Filtering - ID4 2.2L Diesel, Removal and Installation).

6. Disconnect the charger air cooler inlet hose.



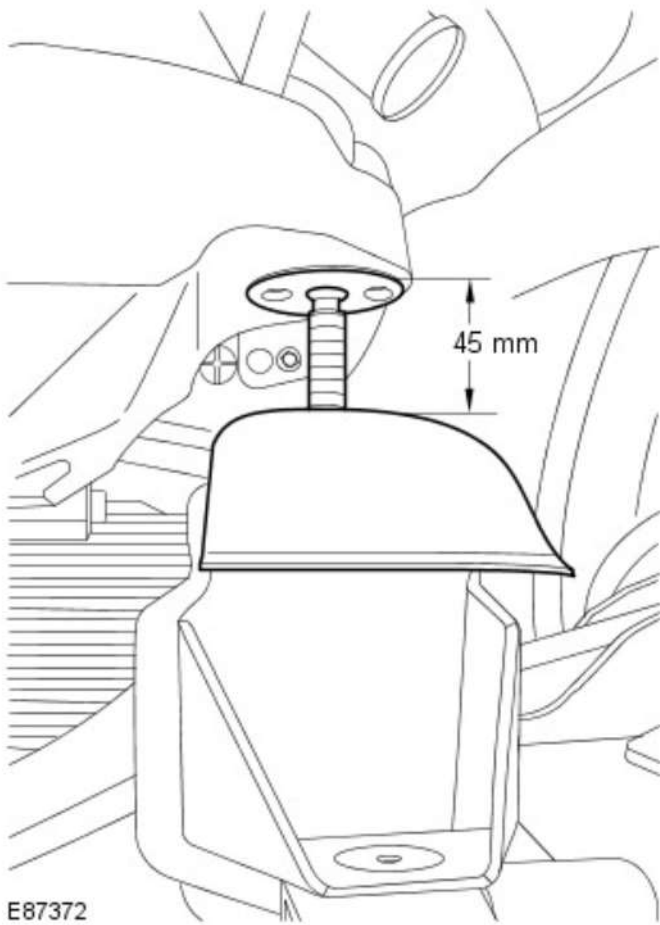
E86110

7. Remove the RH engine mount nut.

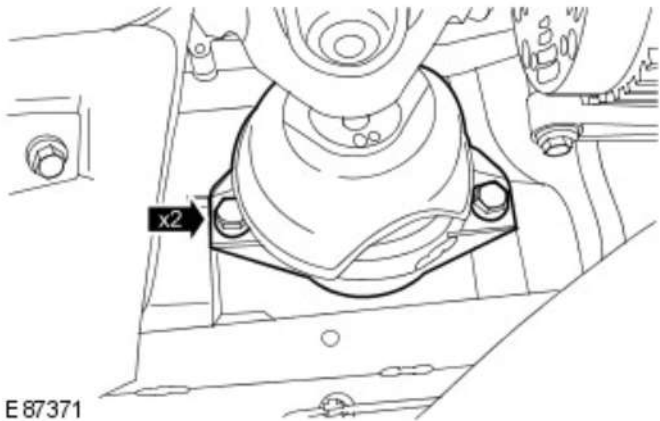


E87370

8. Using a suitable hydraulic jack, raise the engine to a maximum of 45 mm (1.77 inches).

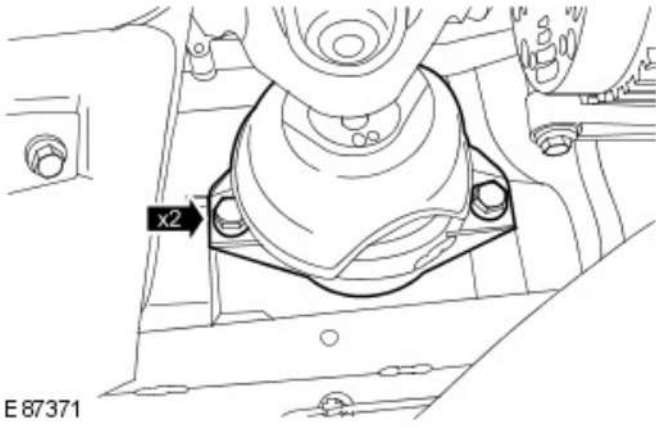


9. Remove the RH engine mount.



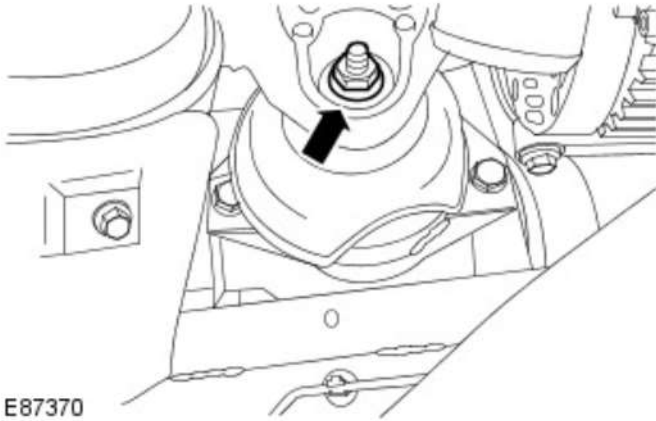
Installation

1. To install, reverse the removal procedure.
2. Tighten to 80 Nm (59 lb.ft).



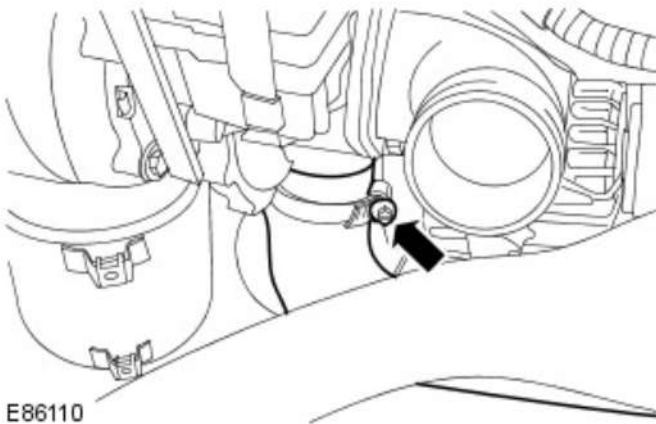
E87371

3. Tighten to 80 Nm (59 lb.ft).



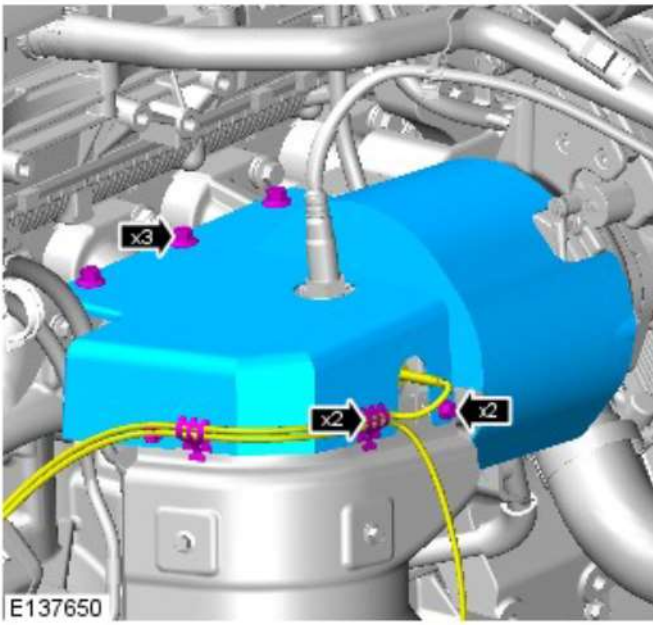
E87370

4. Tighten to 3 Nm (2 lb.ft).

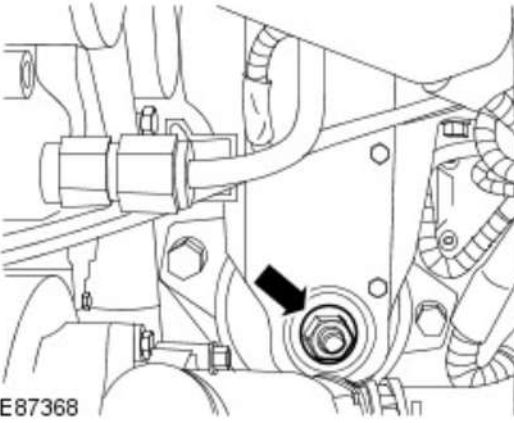


E86110

5. Tighten to 10 Nm (7 lb.ft).



6. Tighten to 80 Nm (59 lb.ft).



Engine - ID4 2.2L Diesel - Exhaust Manifold

Removal and Installation

Removal

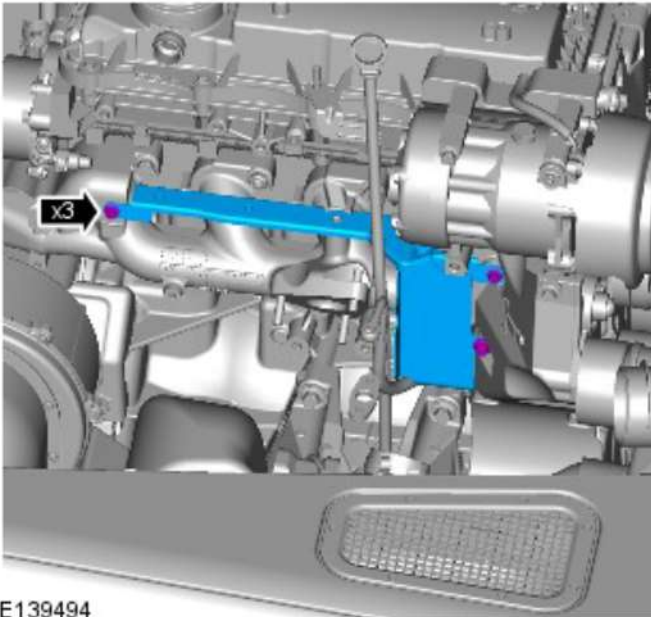
1. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

2.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

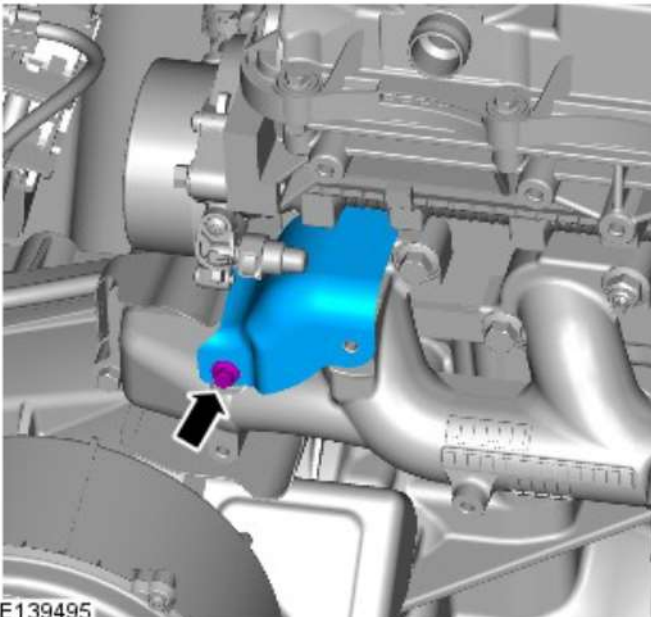
Raise and support the vehicle.

3. For additional information, refer to: [Turbocharger](#) (303-04B Fuel Charging and Controls - Turbocharger - ID4 2.2L Diesel, Removal and Installation).

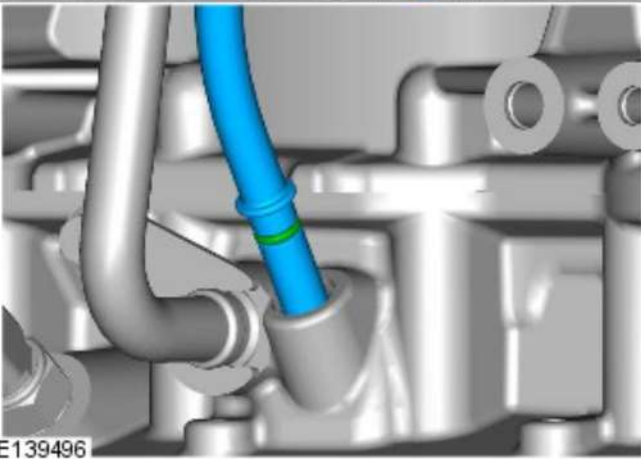
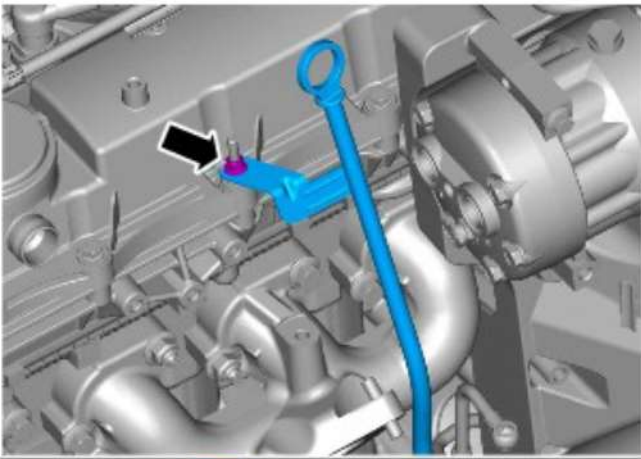
4. Torque: 10Nm



5. Torque: 9Nm

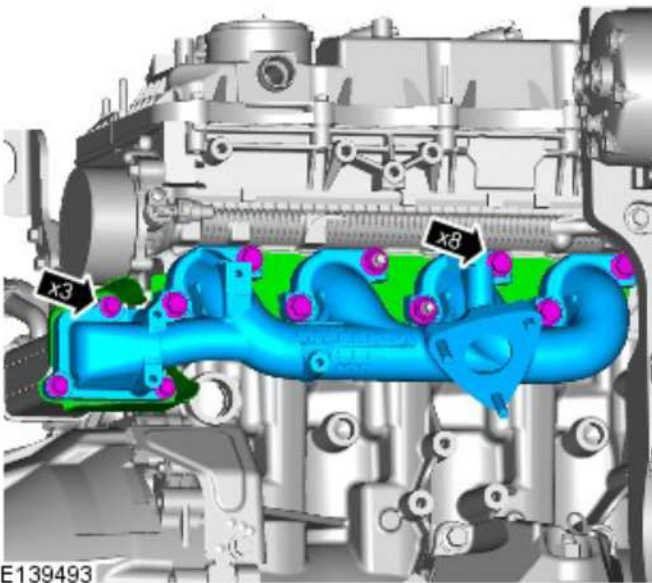


6. Torque: 10Nm



E139496

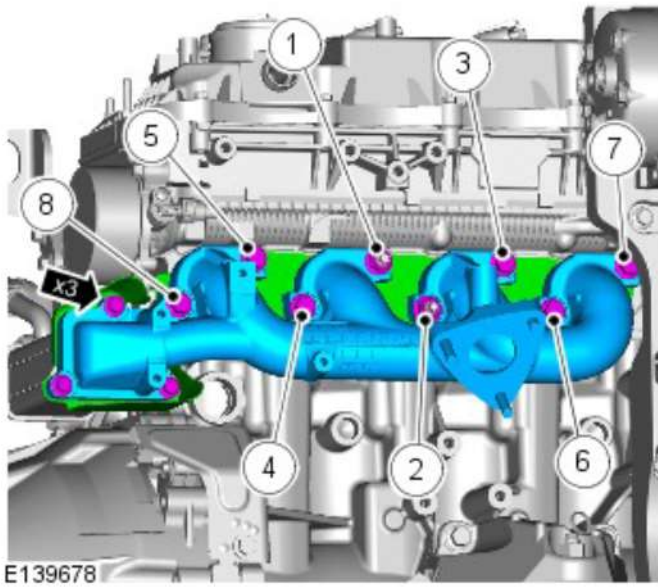
7.  CAUTION: Make sure that the mating faces are clean and free from foreign material.



E139493

Installation

1. NOTE: Install a new gasket.
 1. Stage 1: Tighten the M10 bolts and nuts to 15Nm (11 lb.ft).
 2. Stage 3: Tighten the M10 bolts and nuts to 35Nm (26 lb.ft).
 3. Stage 4: Repeat the M10 bolts and nuts to 35Nm (26 lb.ft).
 4. Tighten the M8 bolts to 25Nm (18 lb.ft).



2. To install, reverse to removal procedure.

Engine - ID4 2.2L Diesel - Intake Manifold

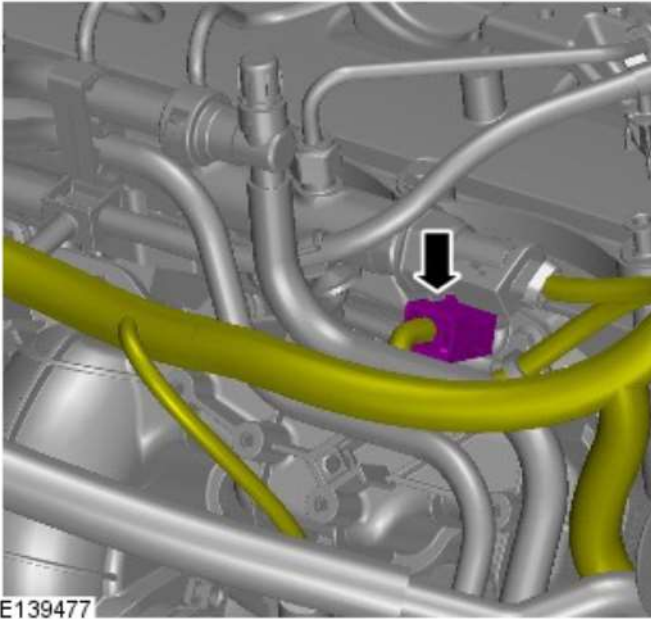
Removal and Installation

Removal

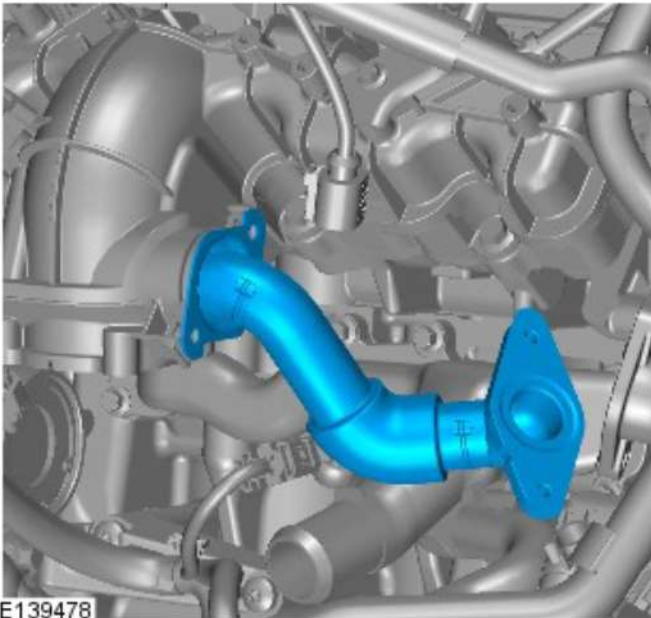
NOTE: Removal steps in this procedure may contain installation details.

1. For additional information, refer to: [Exhaust Gas Recirculation \(EGR\) Valve](#) (303-08 Engine Emission Control - ID4 2.2L Diesel, Removal and Installation).
2. For additional information, refer to: [Throttle Body](#) (303-04A Fuel Charging and Controls - ID4 2.2L Diesel, Removal and Installation).

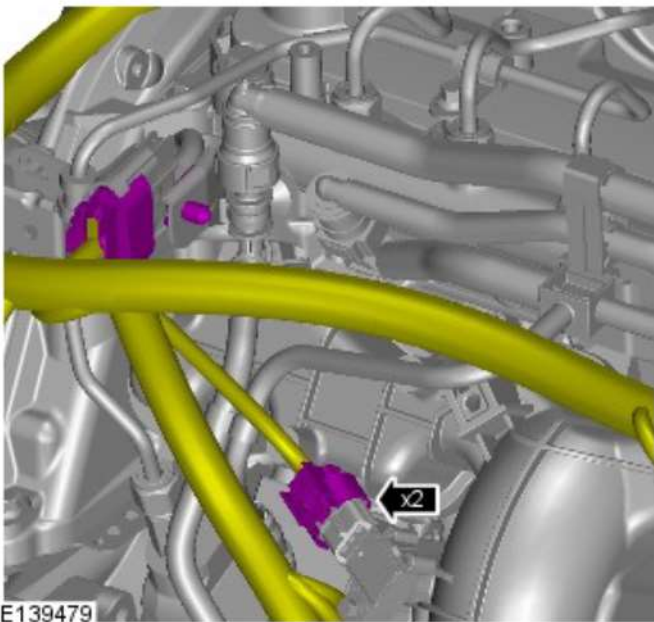
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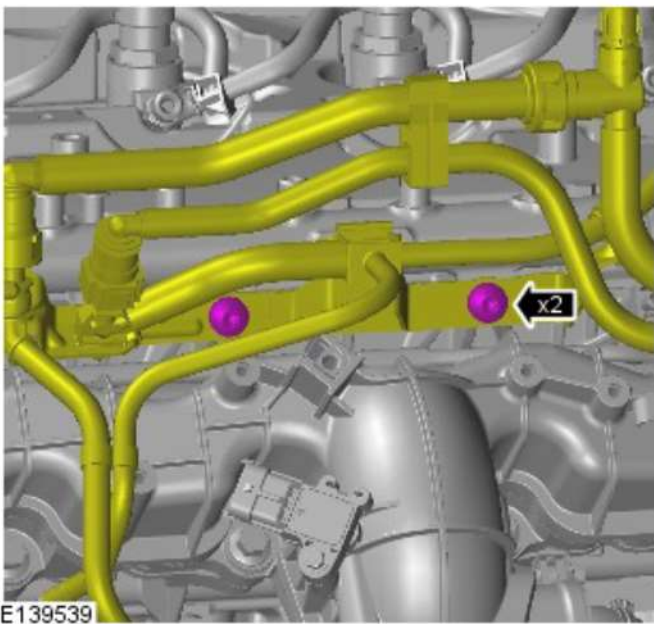
4.




5.



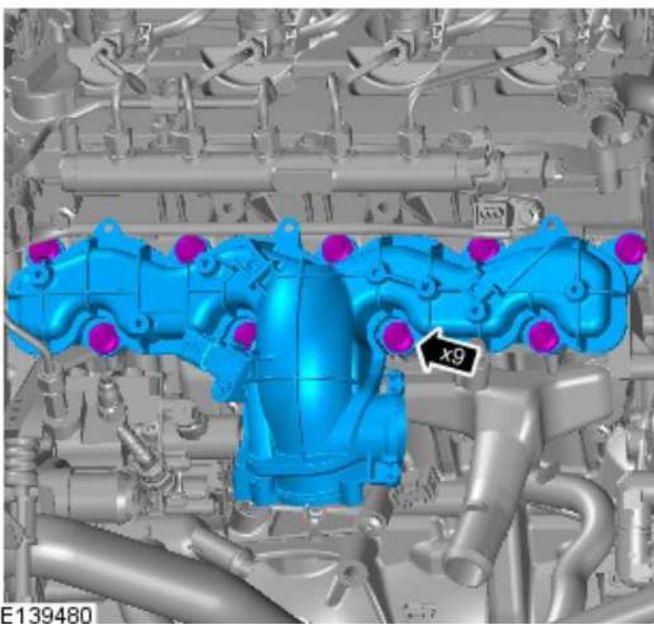
6. Torque Stage 1: 8Nm, Stage 2: 23Nm



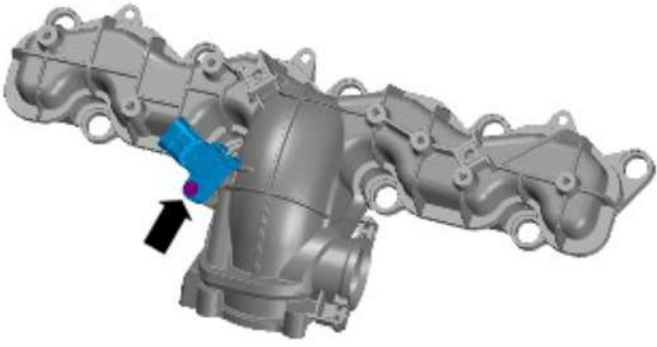
7.  CAUTION: Make sure that all openings are sealed. Use new blanking caps.

NOTE: Clean the component mating faces.

Torque: 15Nm



8. Torque: 3Nm



E139481

Installation

1. To install, reverse the removal procedure.

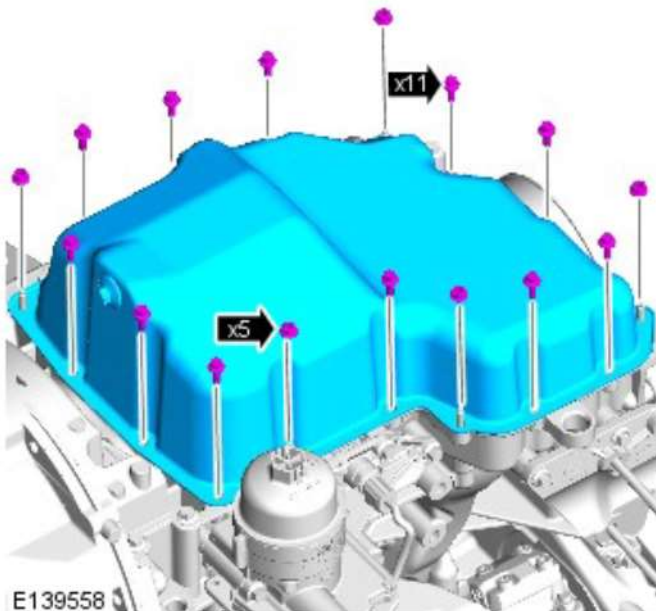
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Engine - ID4 2.2L Diesel - Oil Pan

Removal and Installation

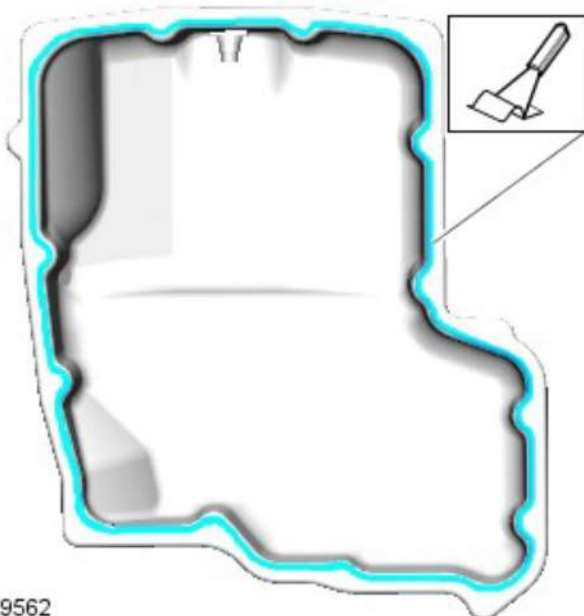
Removal


1. Raise the vehicle on lift.
2. Drain the engine oil.
For additional information, refer to: [Engine Oil Draining and Filling](#) (303-01 Engine - ID4 2.2L Diesel, General Procedures).
3. Remove the 16 oil pan bolts.



4.  **CAUTION: CAUTION:** Avoid damage to the oil pan mating face of the cylinder block. Failure to follow this instruction may cause damage to the vehicle.

Remove the engine oil pan.



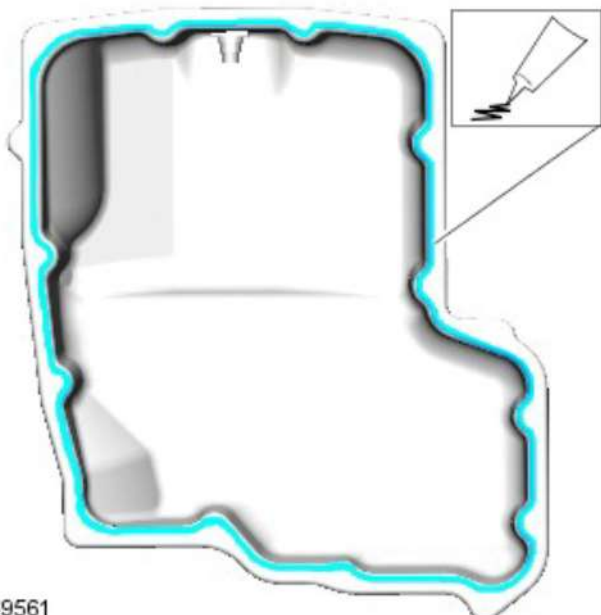
5.  **CAUTION: CAUTION:** Avoid damage to the oil pan mating face of the cylinder block. Failure to follow this instruction may cause damage to the vehicle.

Remove the sealant from the engine.

Installation

1. **NOTE:** Clean the cylinder block mating faces.

Apply a 3mm bead of sealer WSE-M4G323-A4 to the oil pan.

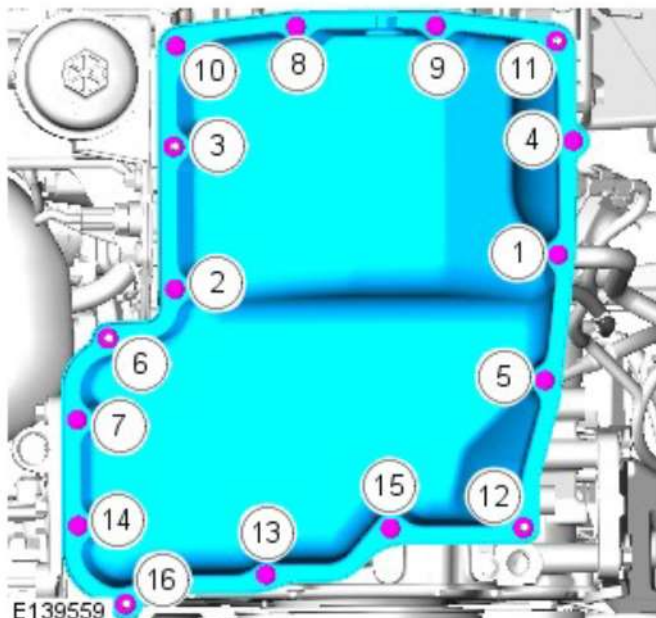


E139561

2. NOTE: Tighten the bolts in the sequence shown.

Install the oil pan.

1. Tighten the oil pan bolts.
2. Stage 1: Torque to 7NM
3. Stage 2: Torque to 14NM



E139559

3. Lower the vehicle.
4. Remove the engine oil filler cap.
5. Fill the engine with the recommended oil to the correct level.
6. Install the engine oil filler cap.
7. Check and top-up the engine oil.
For additional information, refer to: [Engine Oil Draining and Filling](#) (303-01 Engine - ID4 2.2L Diesel, General Procedures).
8. Close the bonnet.

Engine - ID4 2.2L Diesel - Oil Pump

Removal and Installation

Removal

1. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

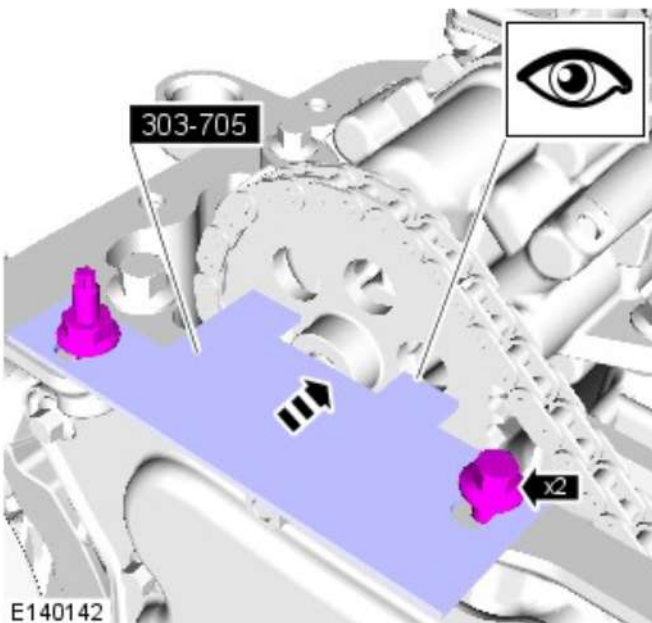
2.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise the vehicle on lift.

3. Remove the engine oil pan.
For additional information, refer to: [Oil Pan](#) (303-01 Engine - ID4 2.2L Diesel, Removal and Installation).

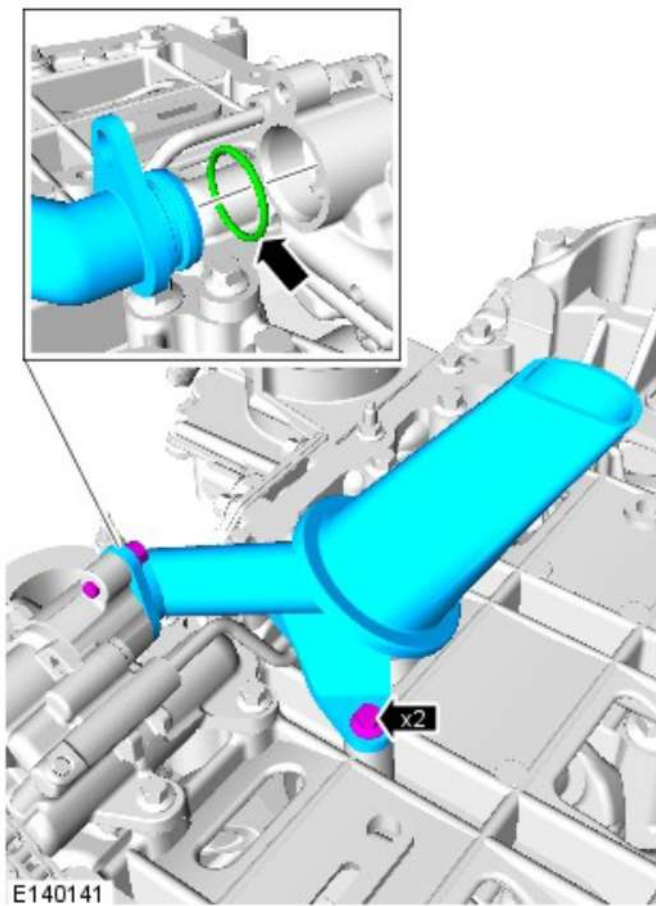
4. **NOTE:** Install the special tool so that the tool face aligns with the oil pump sprocket.

Install the special tool to the engine block.

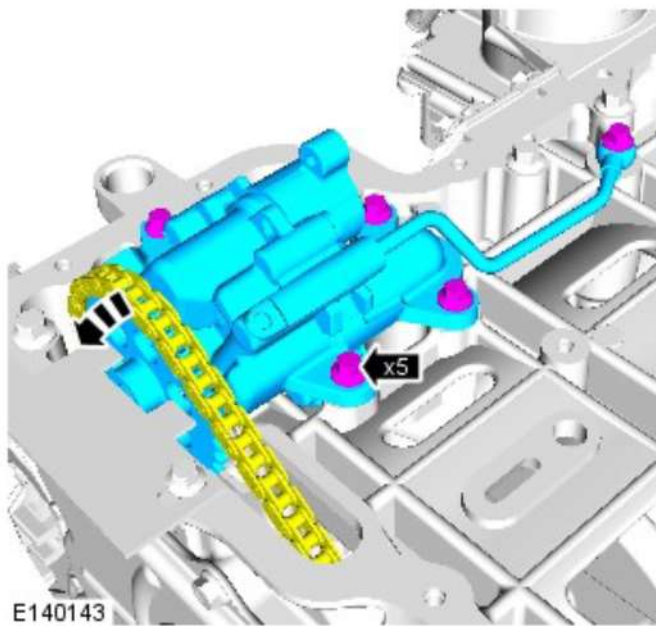


5. **NOTE:** Remove and discard the O-ring seal.

Remove the oil pickup pipe.

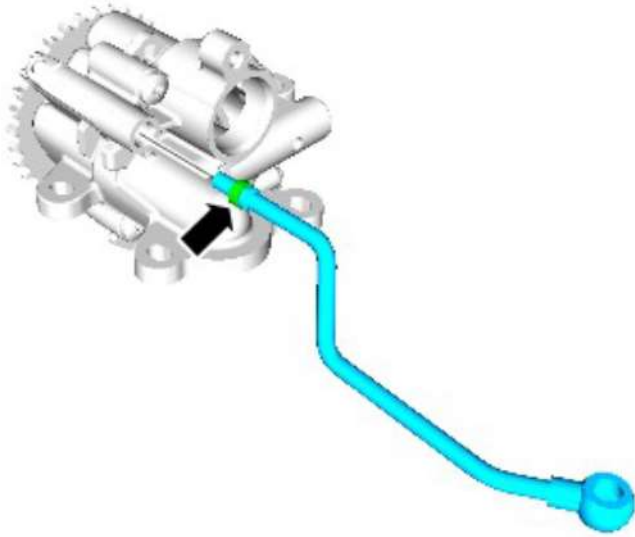


6. Remove the oil pump.



7. NOTE: Do not disassemble further if the component is removed for access only.

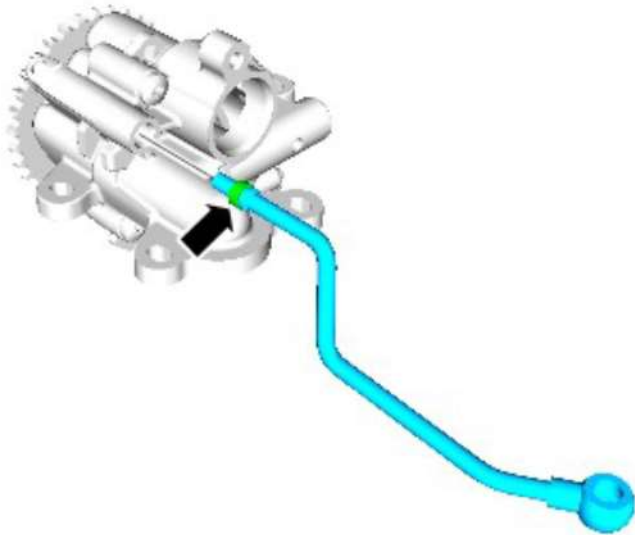
Remove the oil pump outlet pipe.



E140144

Installation

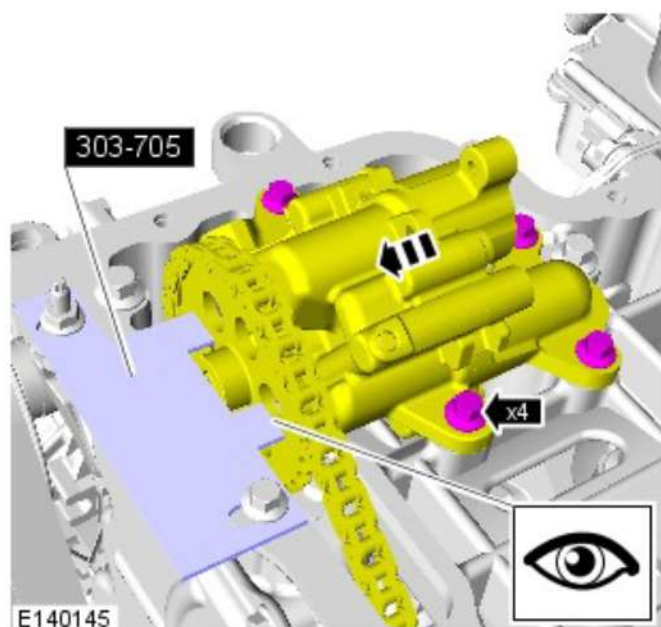
1. Install the oil pump outlet pipe.



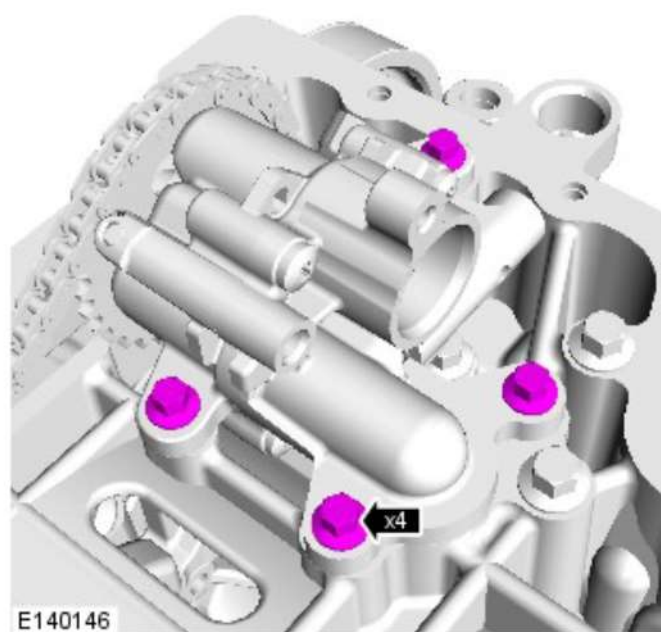
E140144

2. **NOTE:** Do not tighten the bolts at this stage.

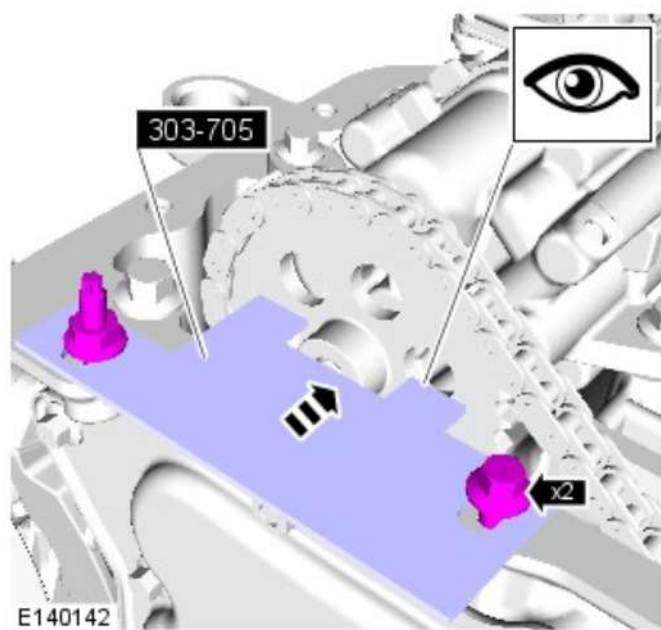
Install the oil pump so the sprocket touches the special tool.



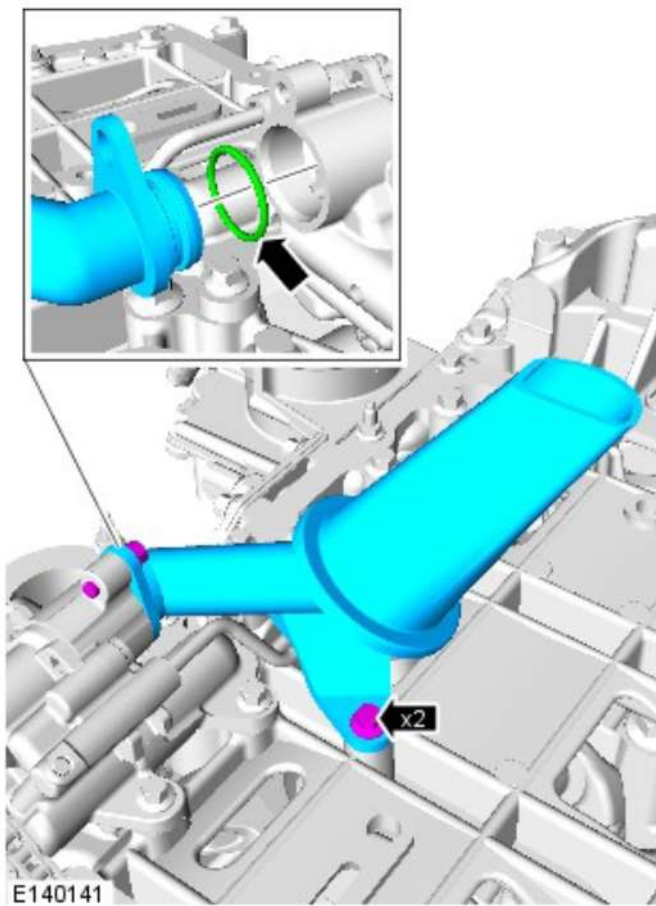
3. Torque: 10Nm



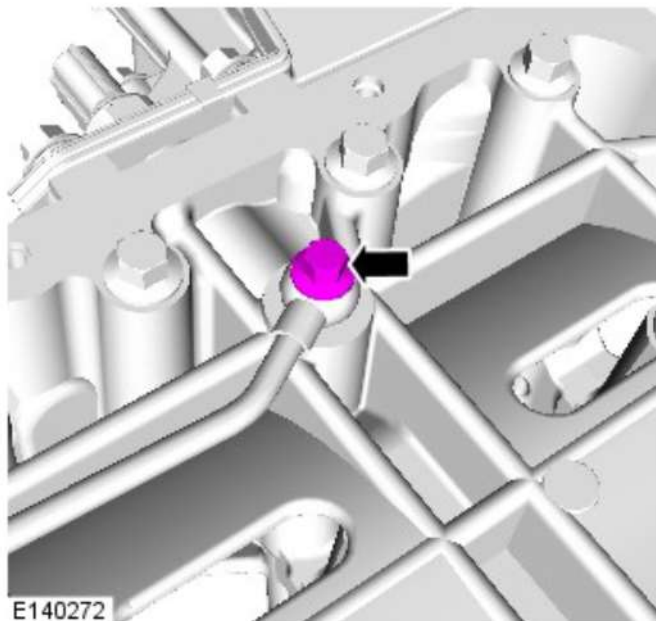
4. Remove the special tool.



5. Torque: 10Nm



6. Torque: 10Nm

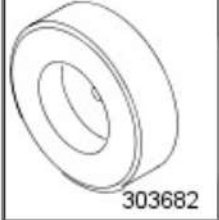


7. Install the engine oil pan
For additional information, refer to: [Oil Pan](#) (303-01 Engine - ID4 2.2L Diesel, Removal and Installation).
8. Lower the vehicle.
9. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

Engine - ID4 2.2L Diesel - Timing Cover

Removal and Installation

Special Tool(s)

	<p>Aligner, Engine Front Cover 303-682</p>
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Removal

1. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

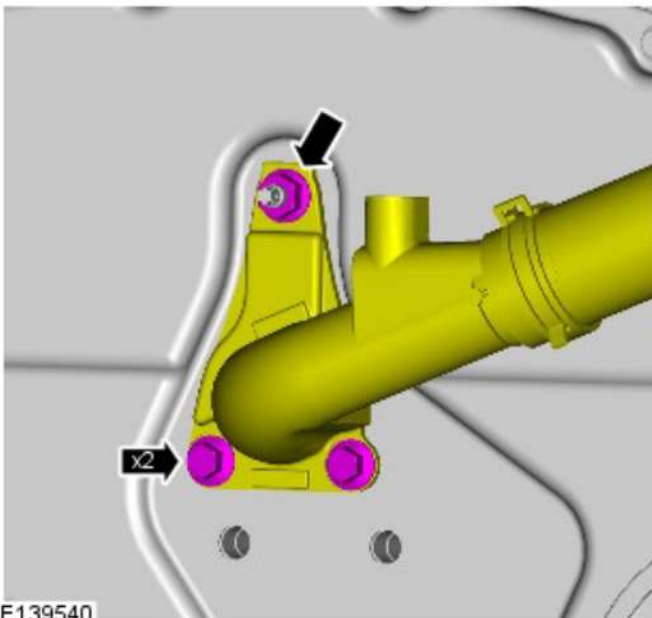
2.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

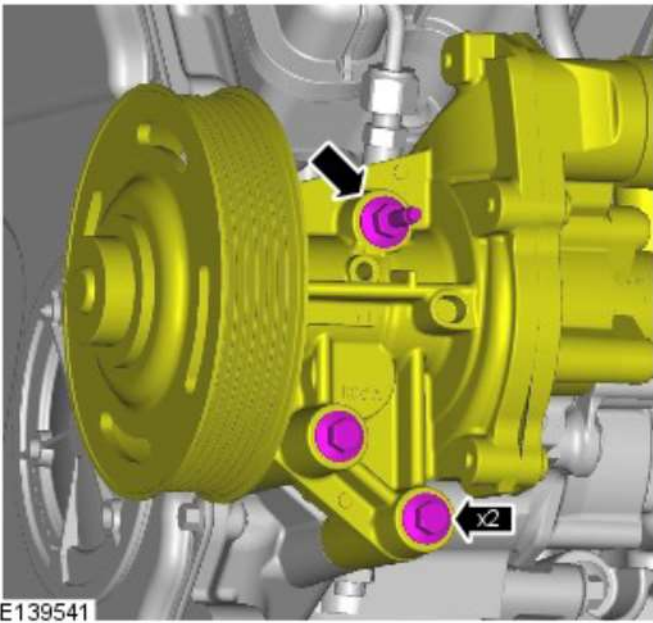
3. For additional information, refer to: [Cooling System Draining, Filling and Bleeding](#) (303-03 Engine Cooling - ID4 2.2L Diesel, General Procedures).
4. For additional information, refer to: [Accessory Drive Component Bracket](#) (303-05 Accessory Drive - ID4 2.2L Diesel, Removal and Installation).
5. For additional information, refer to: [Crankshaft Front Seal](#) (303-01 Engine - ID4 2.2L Diesel, Removal and Installation).


6. **NOTE:** Remove and discard the O-ring seal.

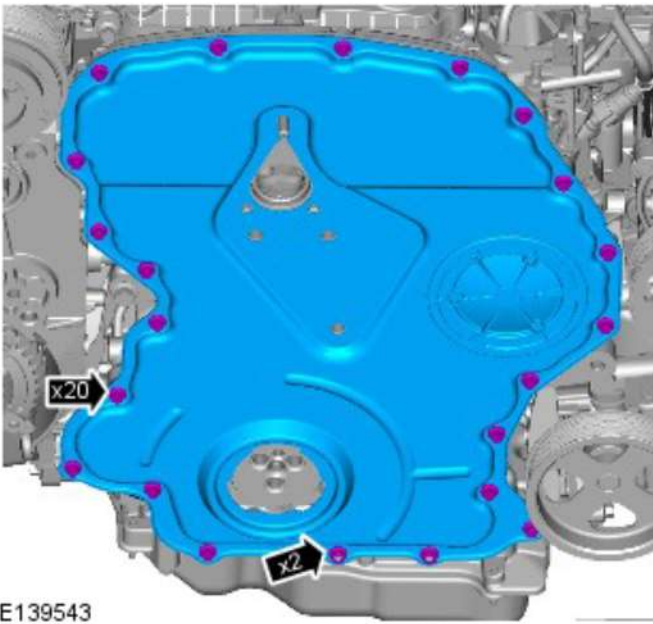
Torque: 23Nm



7. Torque: 23Nm




8.  CAUTION: Make sure that the mating faces are clean and free from foreign material.



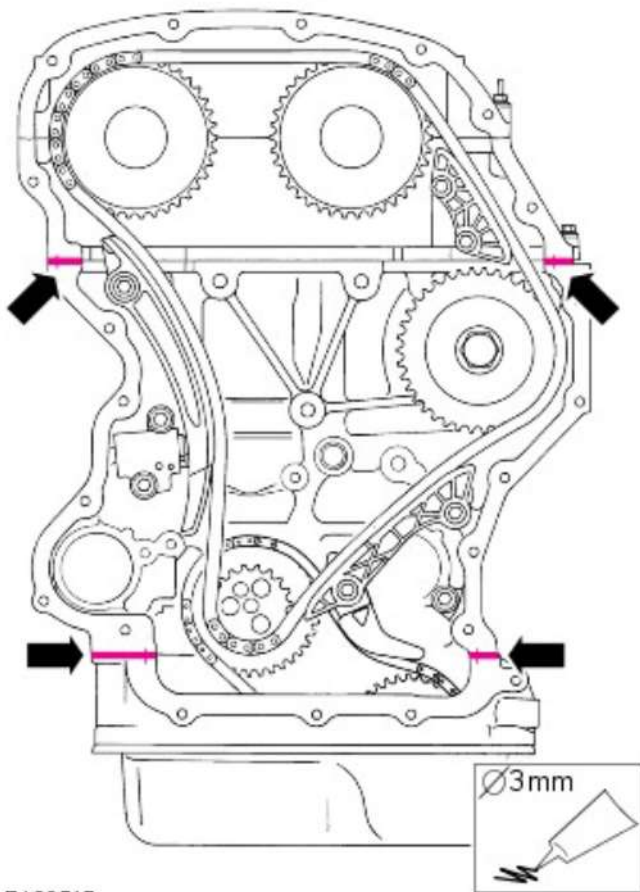
Installation

1. CAUTIONS:


 A new engine timing cover must be installed. Failure to follow this instruction may result in damage to the vehicle.

 Install the engine timing cover within five minutes of applying the sealer. Failure to follow this instruction may result in damage to the vehicle.

 Make sure the mating faces are clean, before the sealant is applied.




E139545

2.  **CAUTION:** Make sure the mating faces are clean, before the sealant is applied.

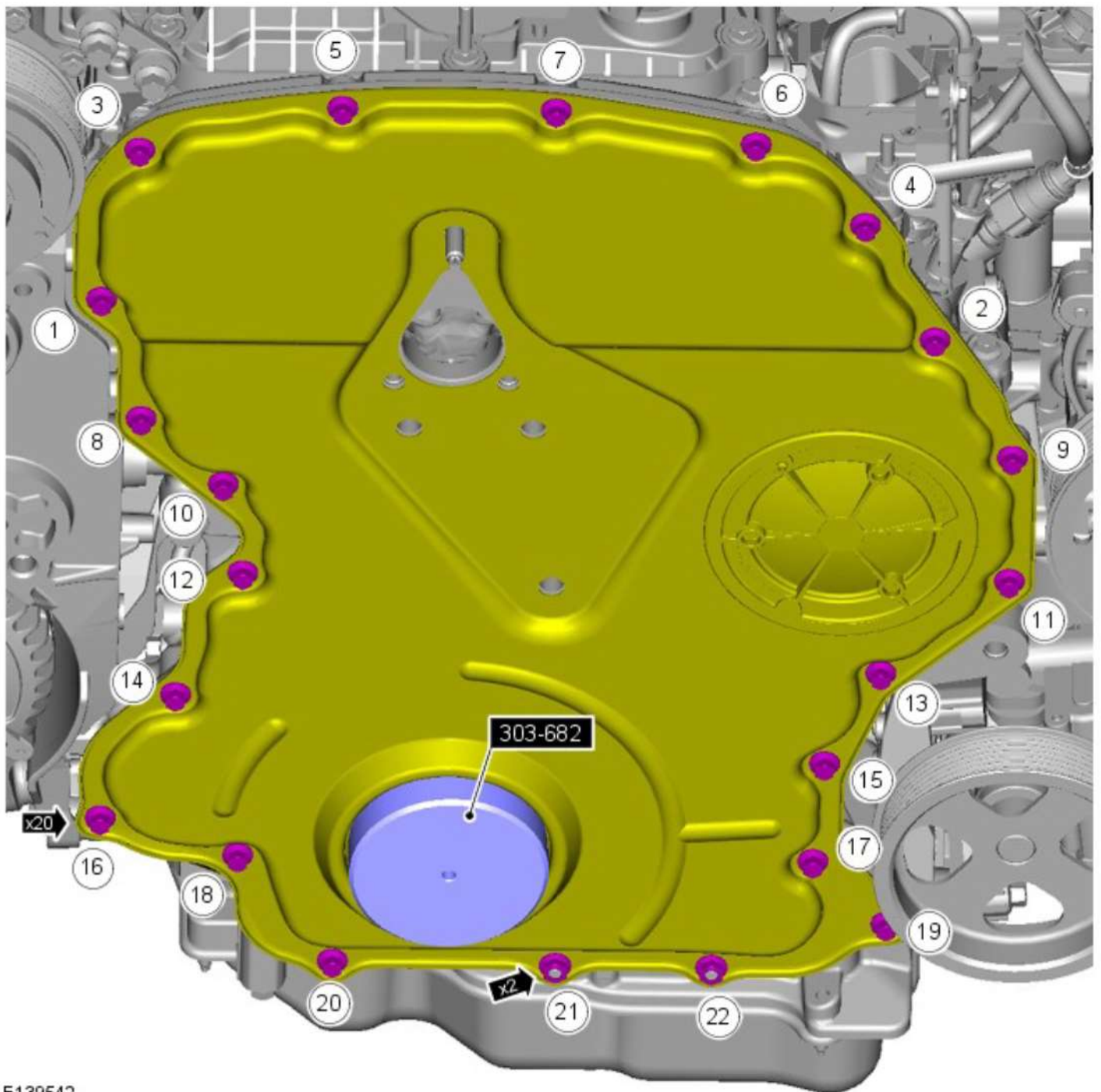


E139544

3.  **WARNING:** Make sure that the engine timing cover does not come into contact with the engine until correct position is obtained.

Tool: 303-682 (Aligner, Engine Front Cover)

1. Stage 1: Tighten the M6 bolts and nuts to 5 Nm
2. Stage 2: Tighten the M6 bolts and nuts to 10 Nm
3. Stage 3: Repeat the M6 bolts and nuts to 10 Nm



E139542

4. To install, reverse to removal procedure.

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Engine - ID4 2.2L Diesel - Flywheel

Removal and Installation

Removal

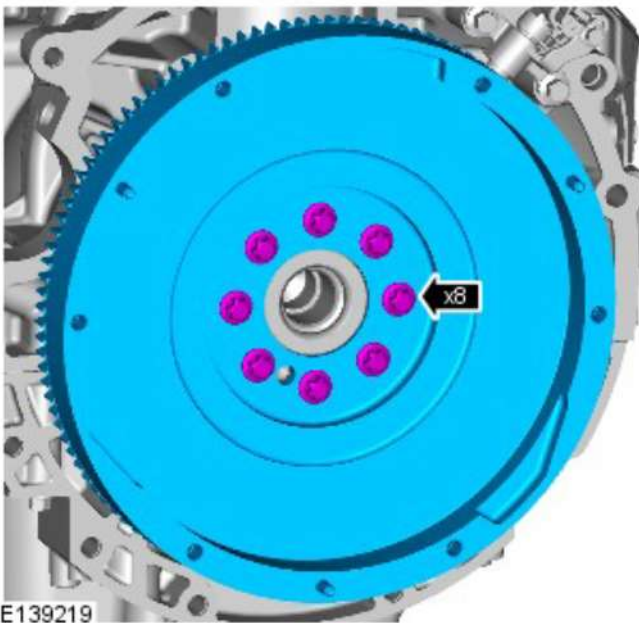
1. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

2.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

3. For additional information, refer to: [Clutch Disc and Pressure Plate](#) (308-01 Clutch - Vehicles With: MT82 6-Speed Manual Transmission, Removal and Installation).

4.



Installation

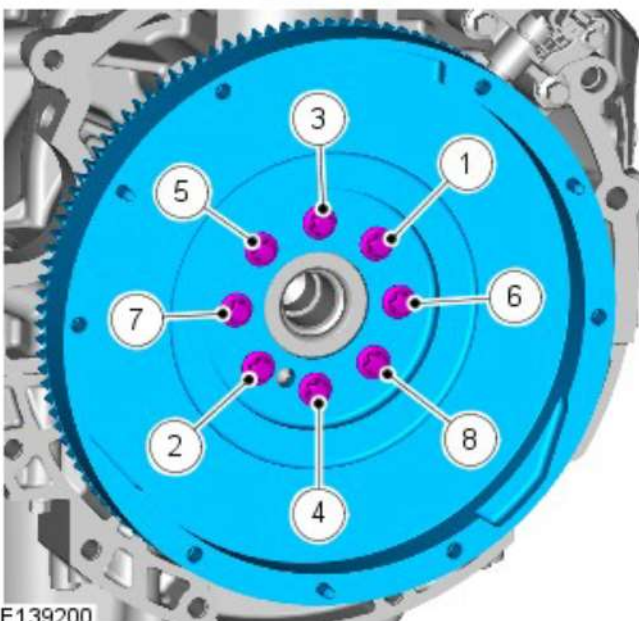
1. **NOTE:** Clean the component mating faces.

NOTE: New bolts must be installed.

NOTE: Tighten the bolts in the sequence shown.

Install the flywheel.

1. Stage 1: Tighten the bolts 1 through 8 to 25 Nm (18 lb.ft).
2. Stage 2: Tighten the bolts 1 through 8 to 45 Nm (33 lb.ft).
3. Stage 3: Tighten the bolts 1 through 8 a further 45 degrees.



2. For additional information, refer to: [Clutch Disc and Pressure Plate](#) (308-01 Clutch - Vehicles With: MT82 6-Speed Manual Transmission, Removal and Installation).

3. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

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Engine - ID4 2.2L Diesel - Engine

Removal

Removal

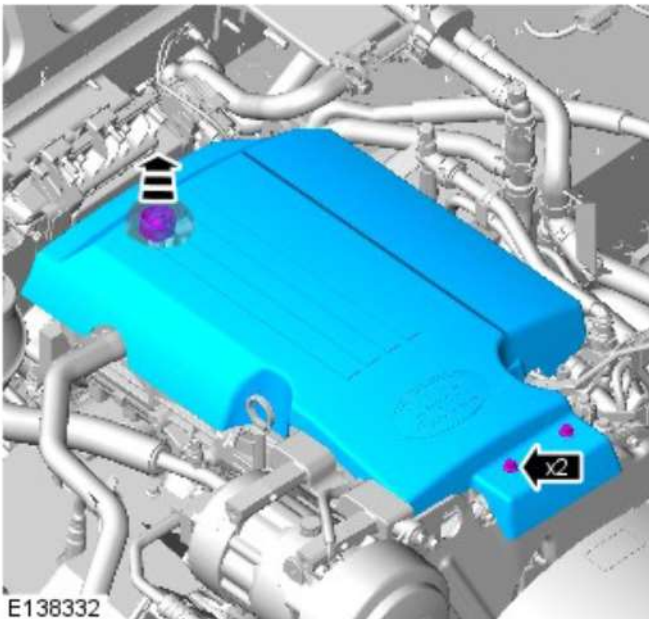
1. For additional information, refer to: [Air Conditioning \(A/C\) System Recovery, Evacuation and Charging](#) (412-00 Climate Control System - General Information, General Procedures).

2.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise the vehicle on a twin-post lift.

3. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).

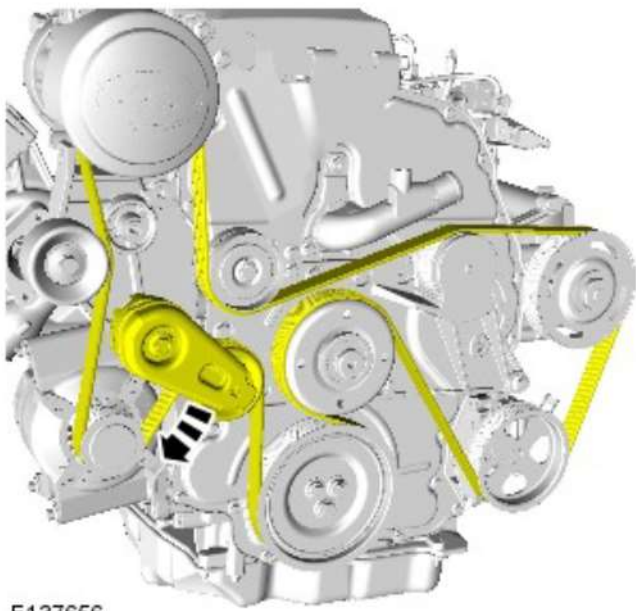
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5. For additional information, refer to: [Cooling System Draining, Filling and Bleeding](#) (303-03 Engine Cooling - ID4 2.2L Diesel, General Procedures).

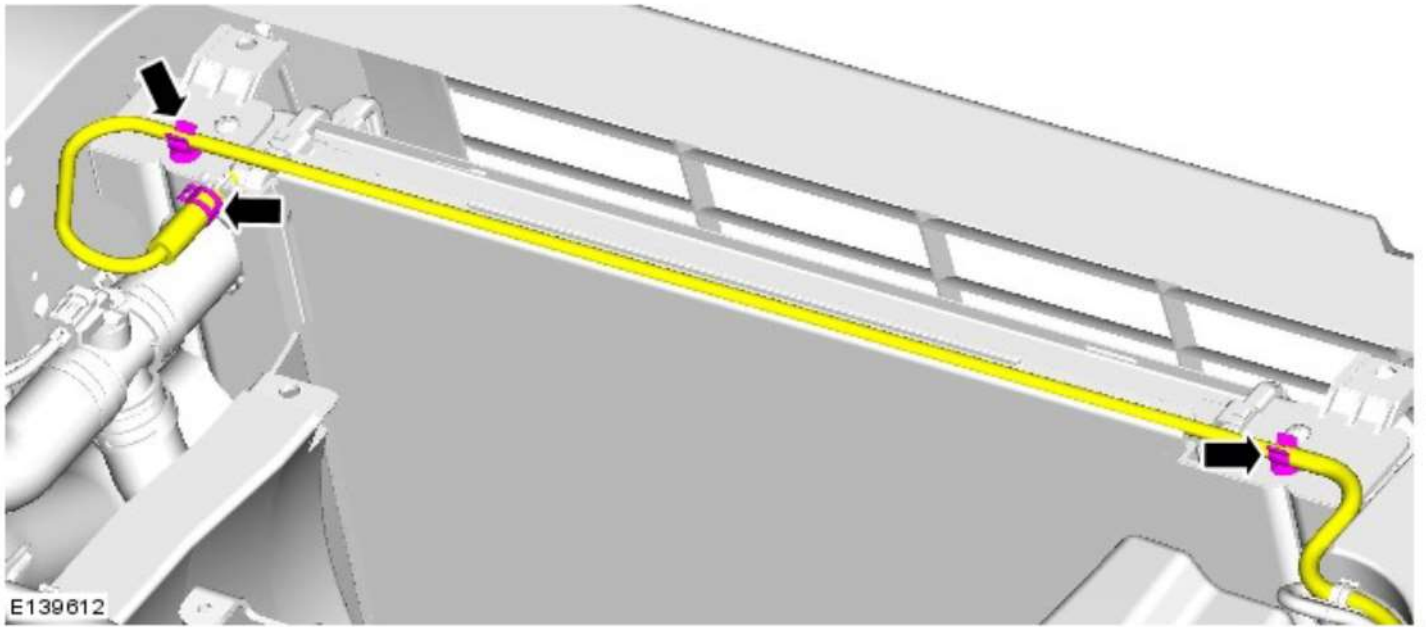
6. For additional information, refer to: [Cooling Fan](#) (303-03 Engine Cooling - ID4 2.2L Diesel, Removal and Installation).

7.



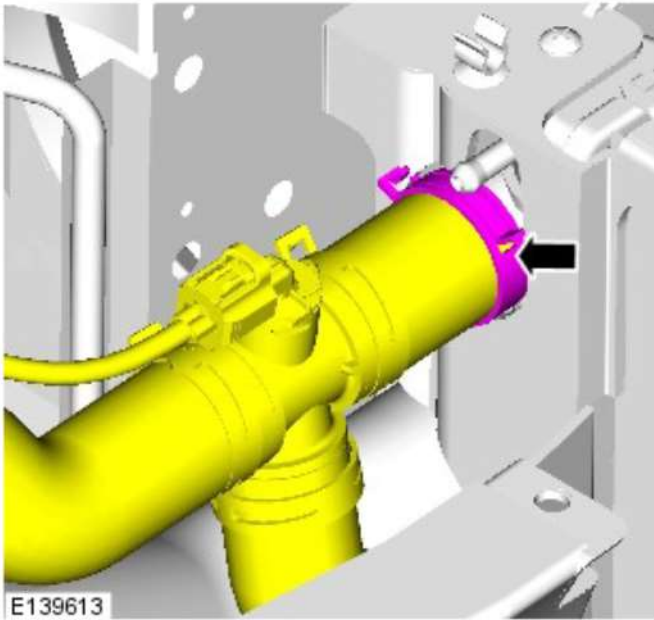
E137656

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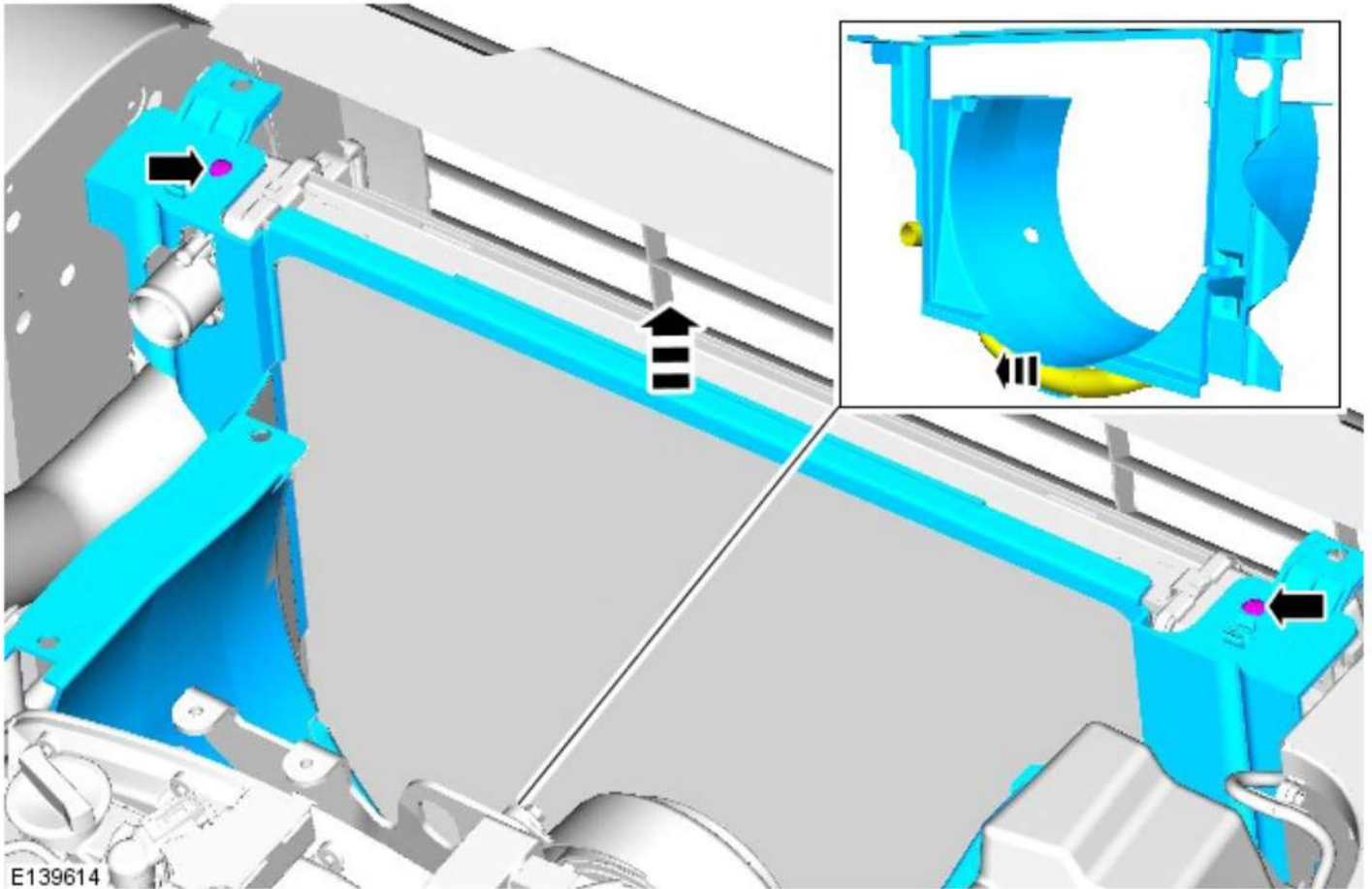


E139612

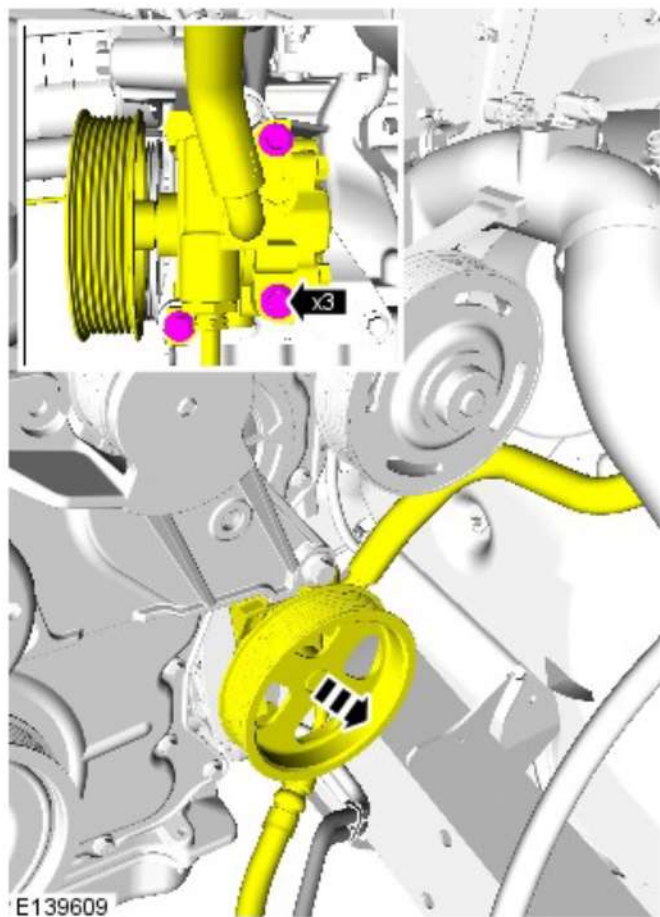
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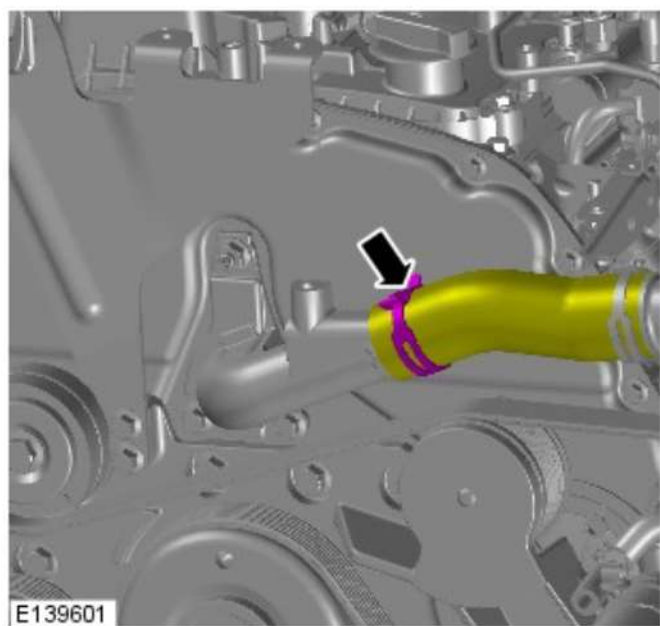
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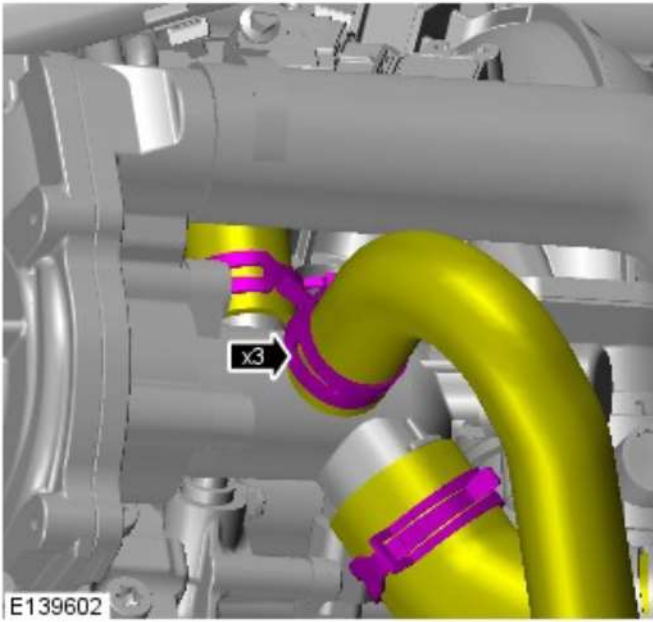
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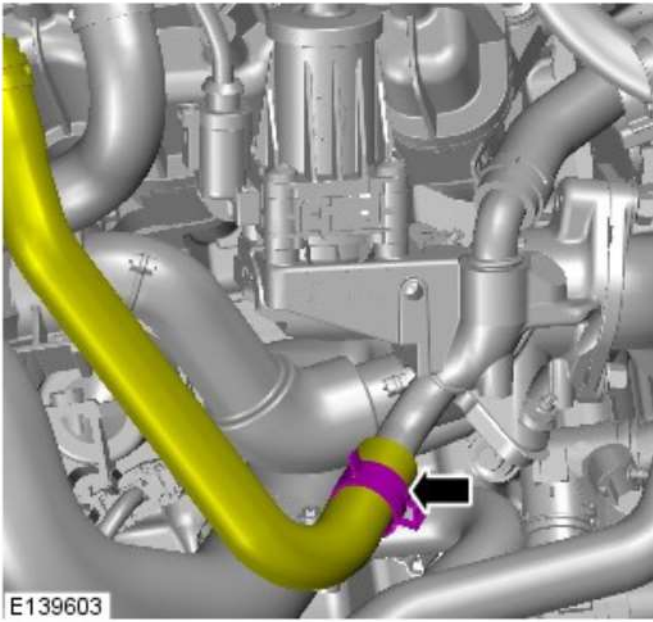
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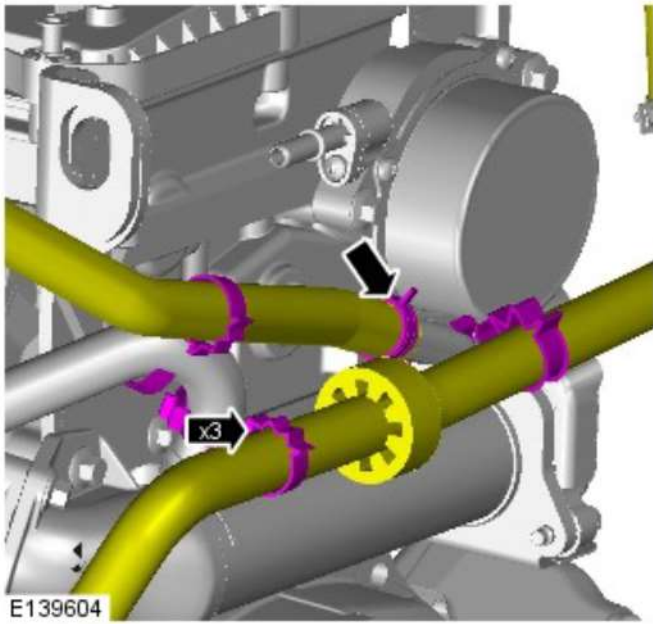
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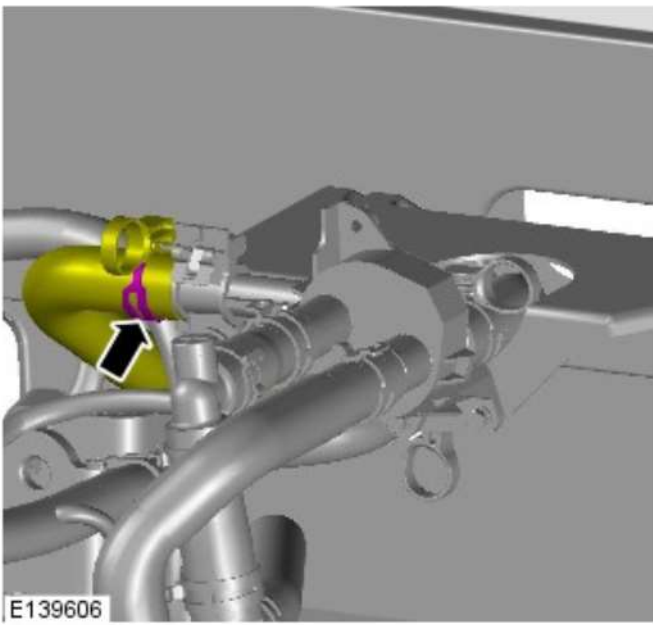
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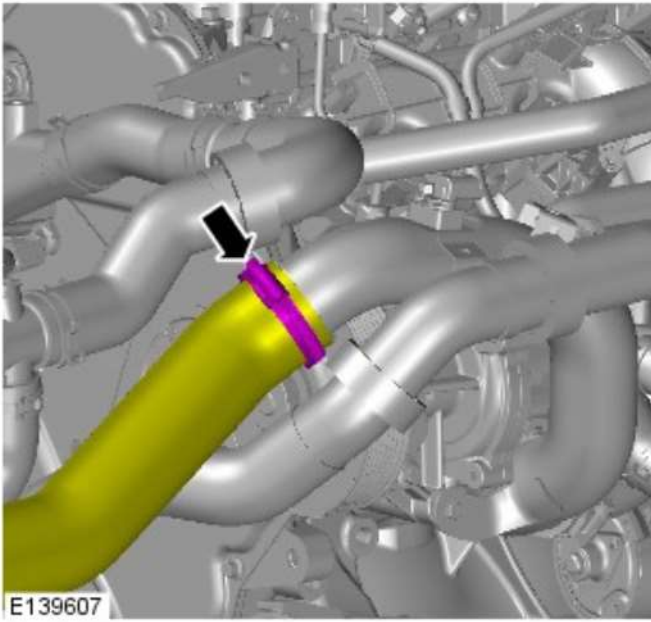
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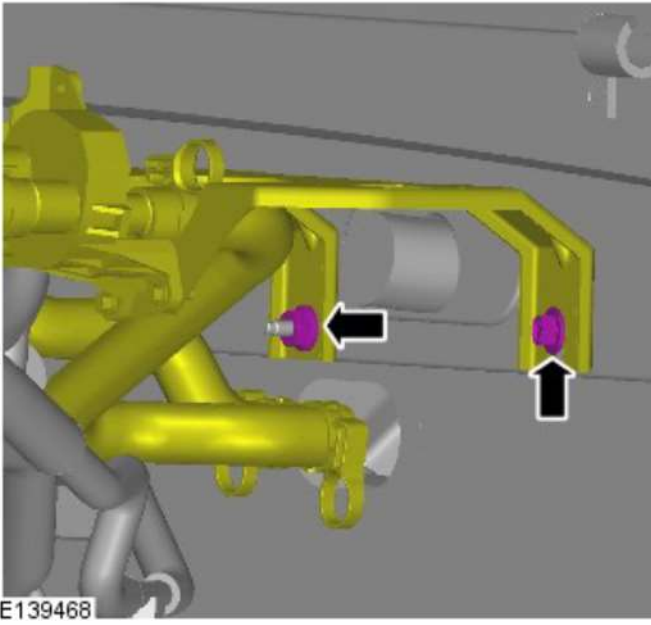
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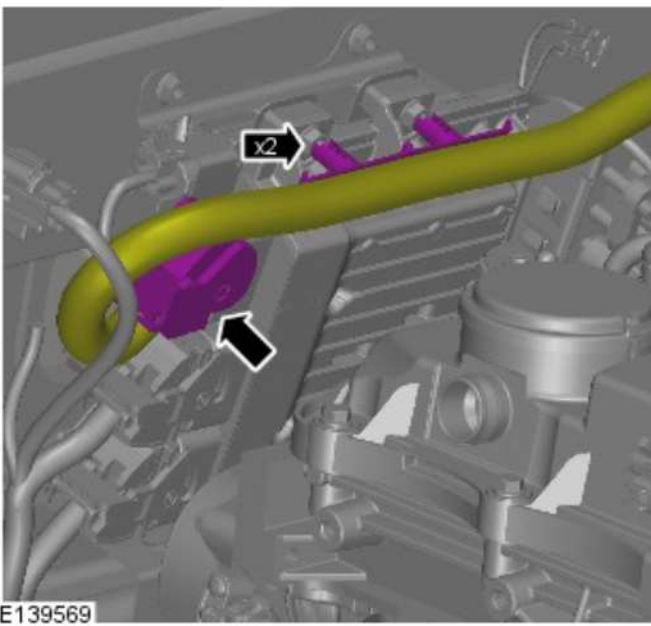
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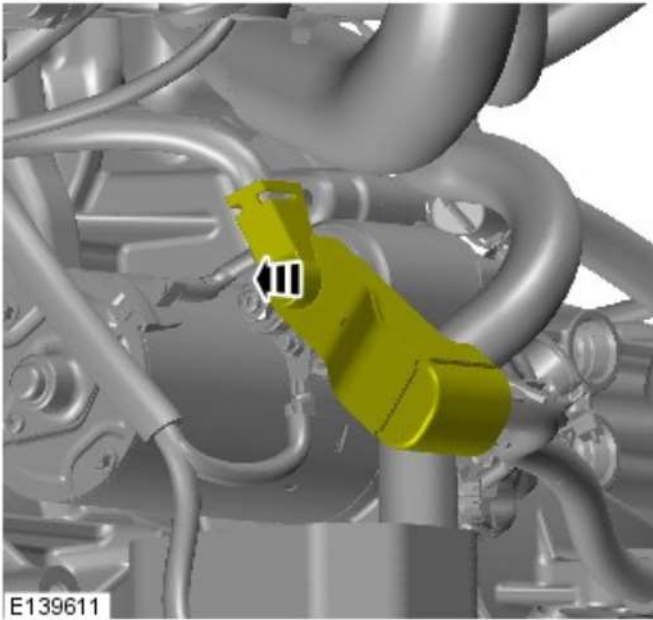
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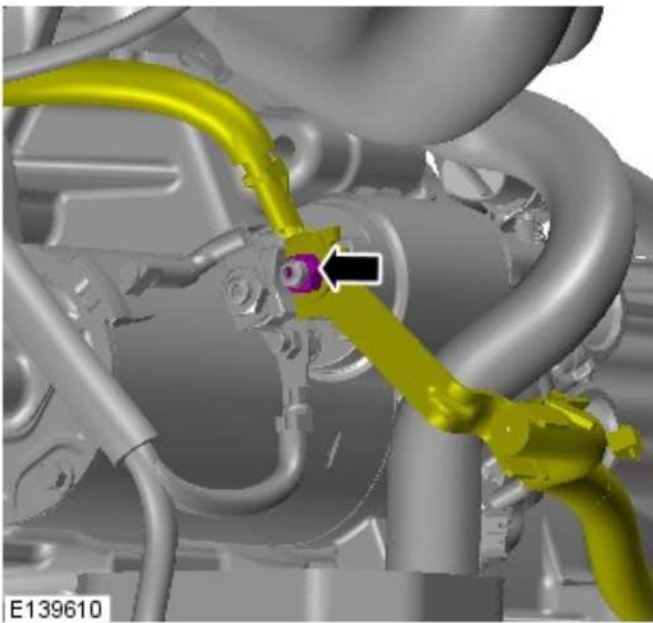
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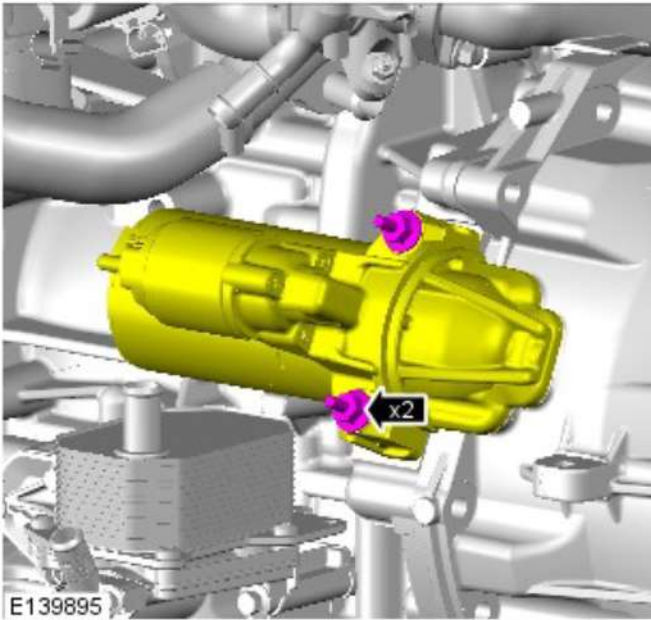
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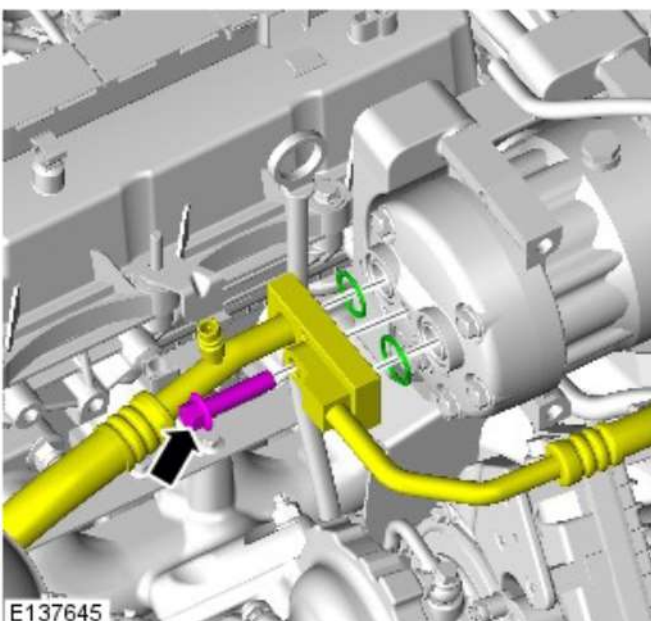
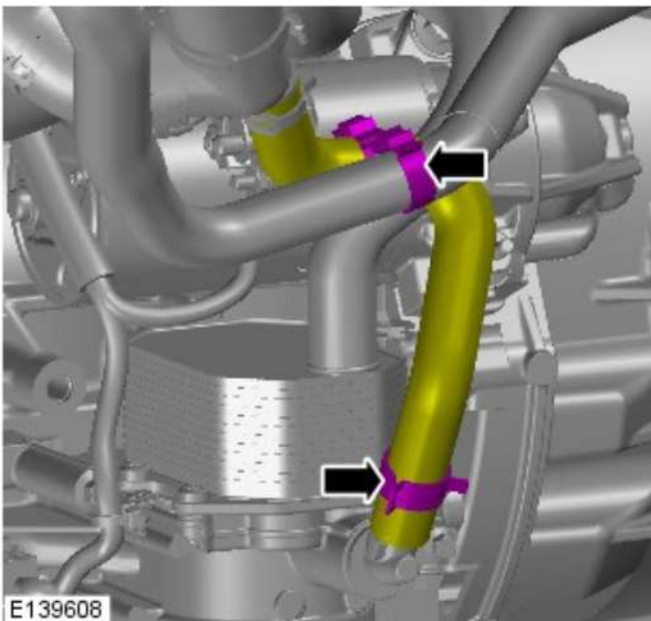
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22.



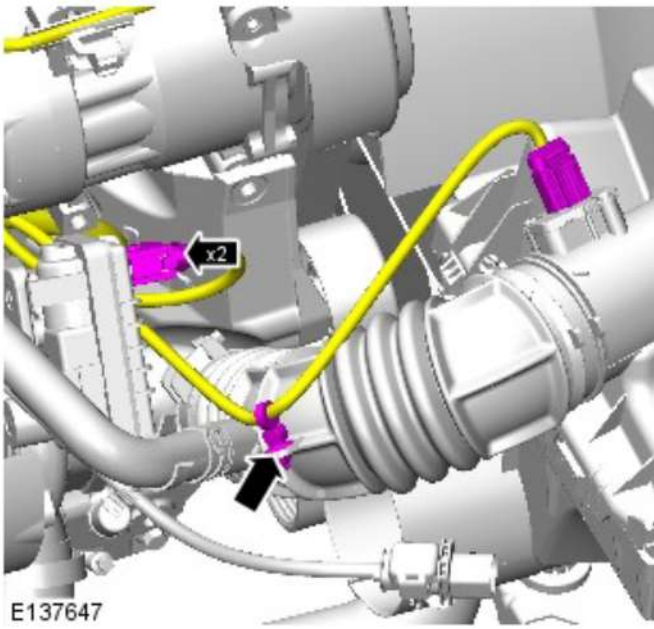
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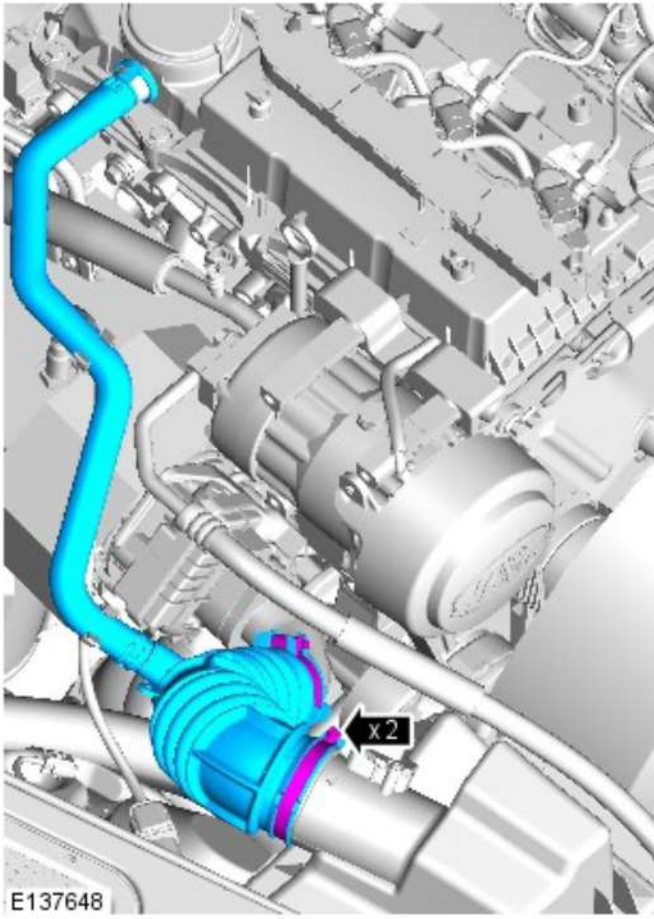
24. CAUTIONS:

-  CAUTION: Remove and discard the O ring seals.
-  CAUTION: Make sure that all openings are sealed. Use new blanking caps.

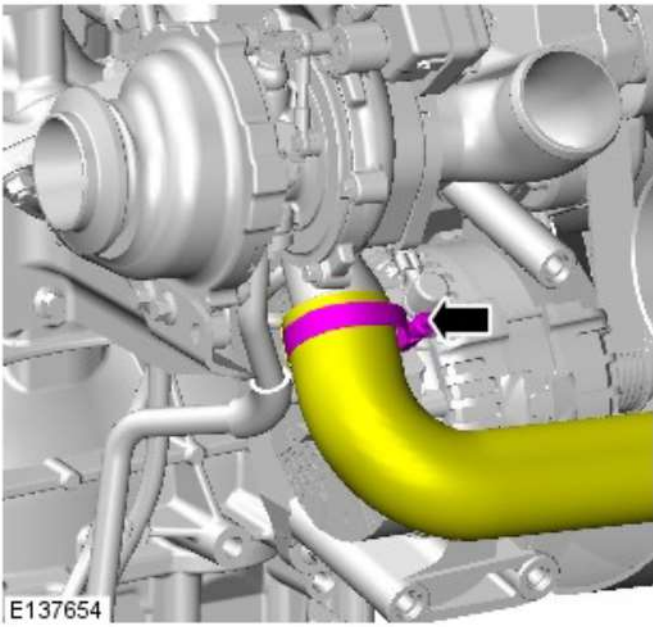
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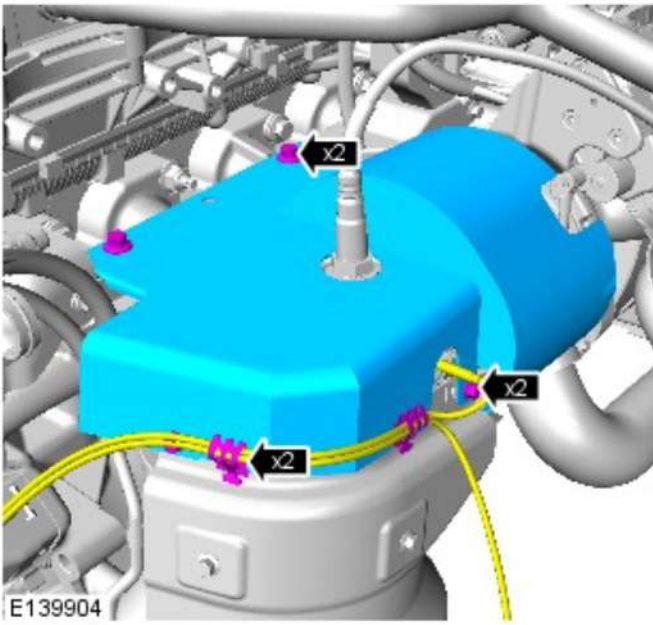
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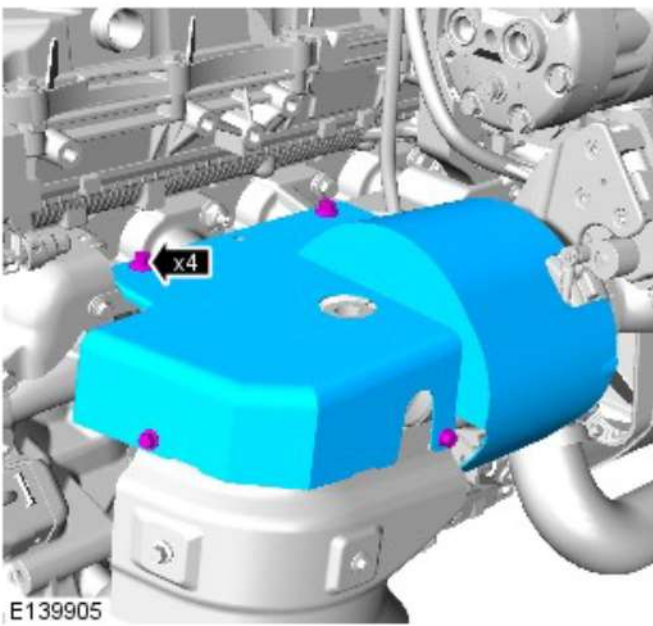
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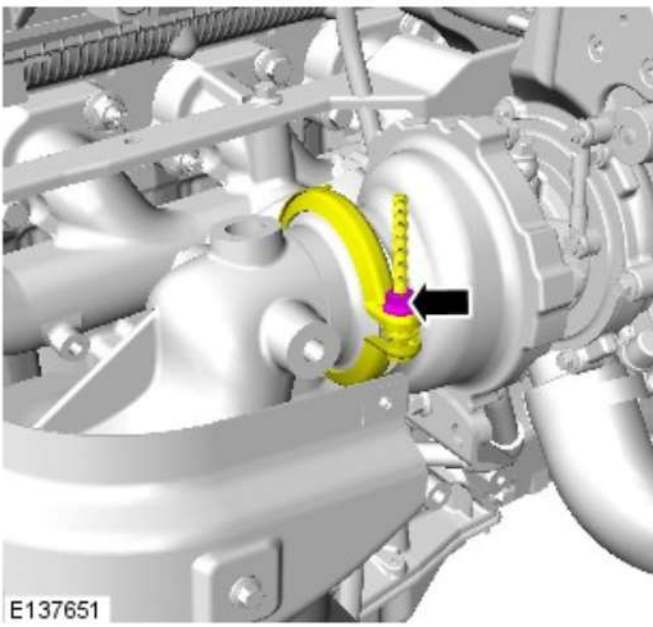
28. NOTE: Vehicles with diesel particulate filter (DPF).



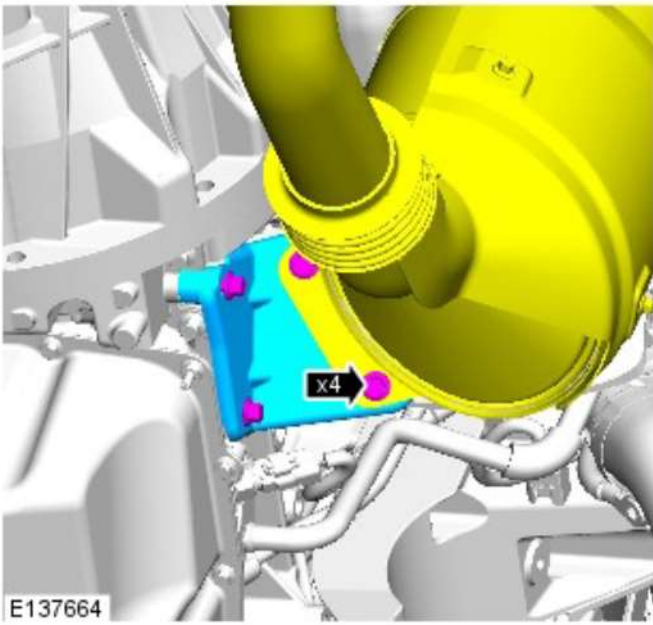
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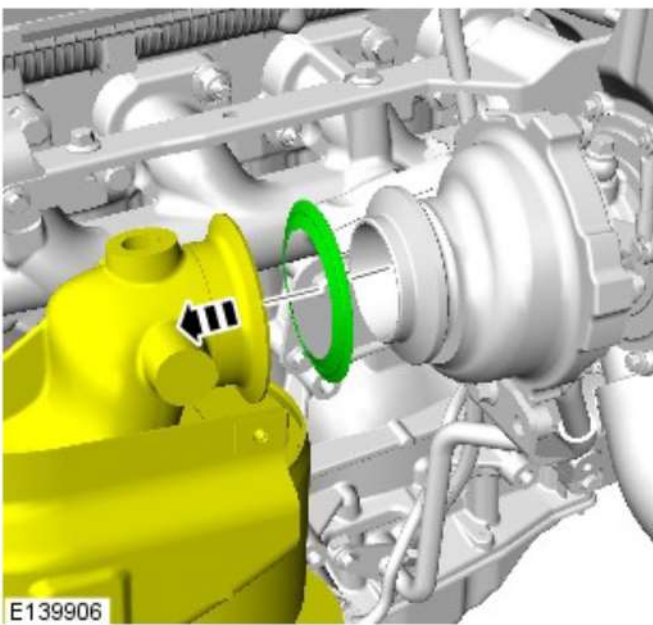
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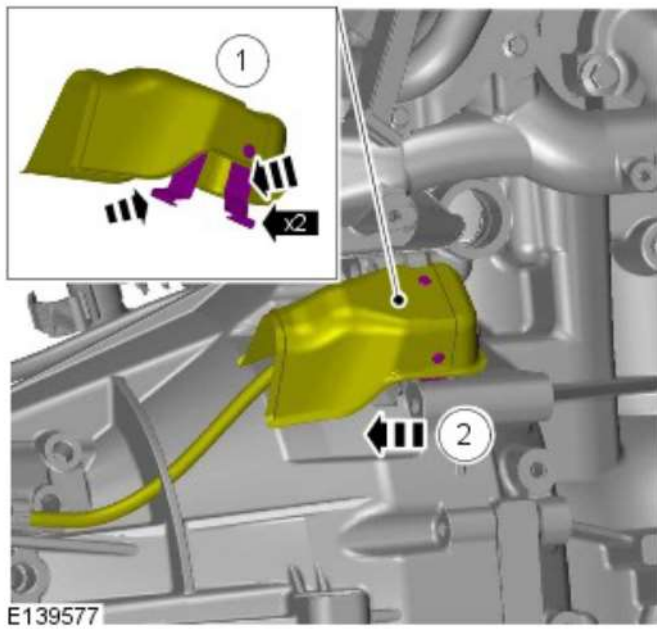
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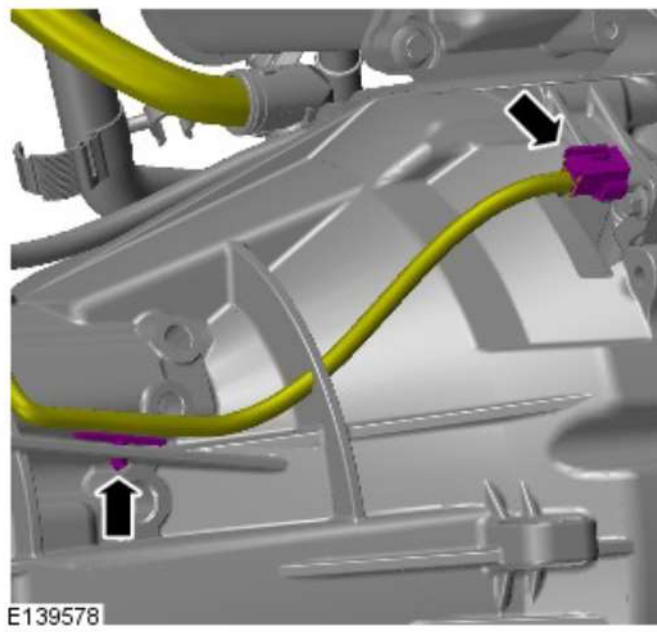
32. NOTE: Remove and discard the gasket.



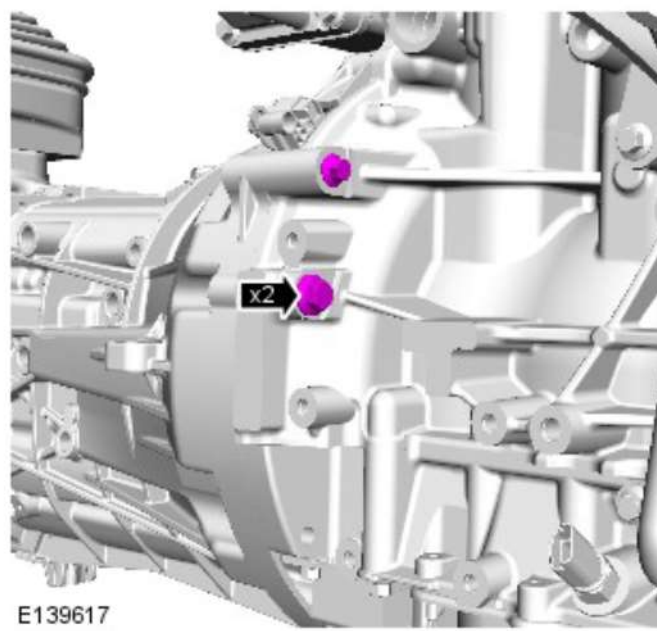
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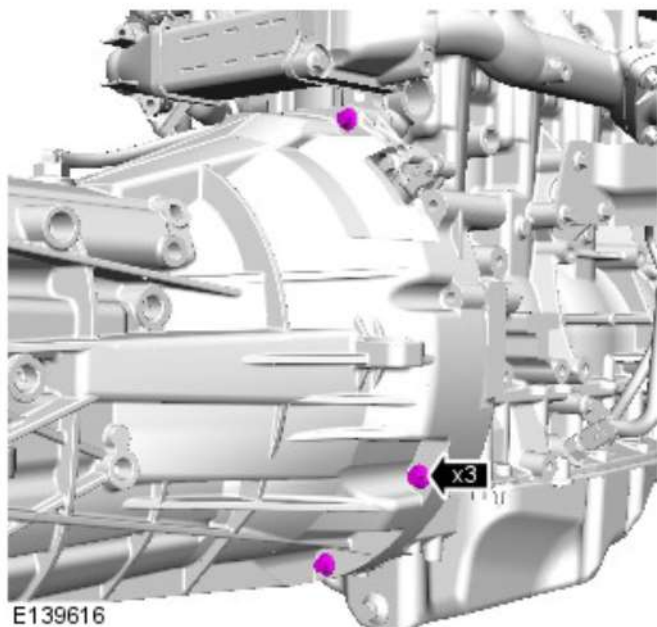
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35.

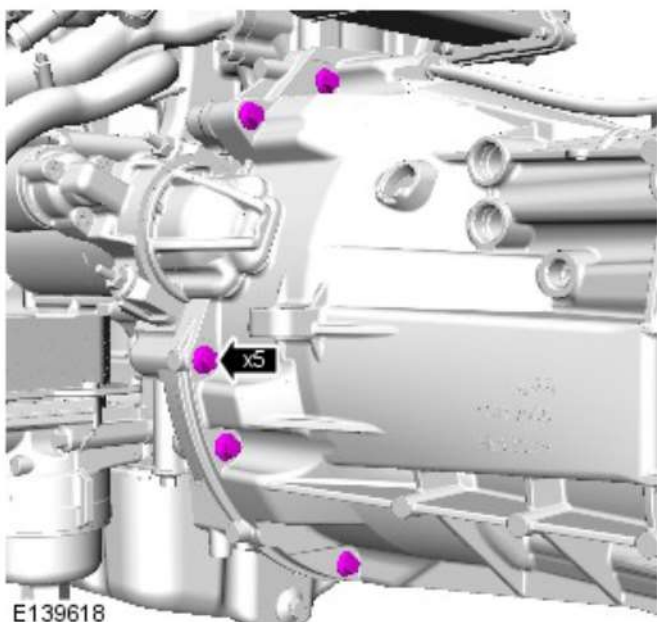


36.



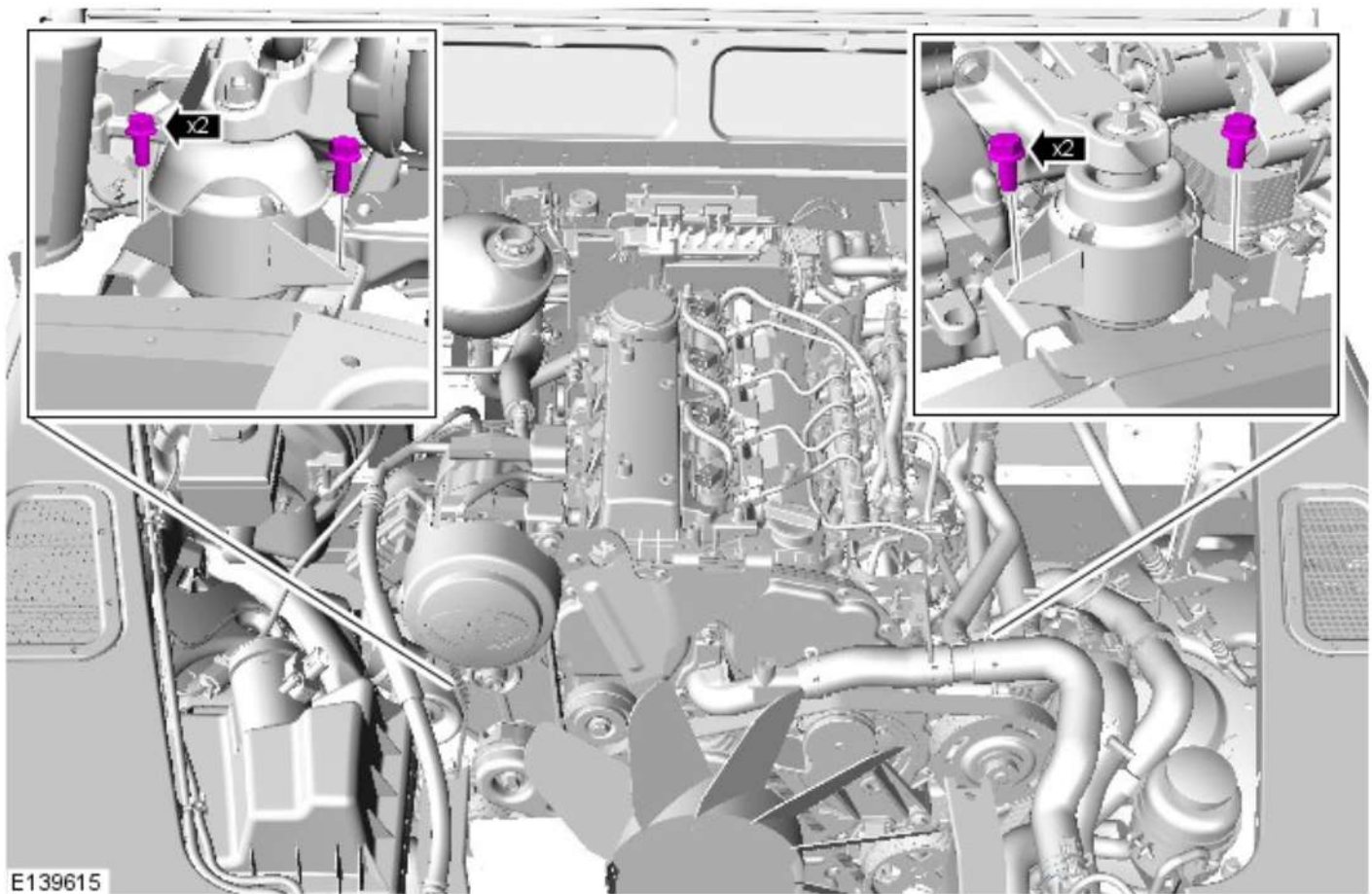
E139616

37.



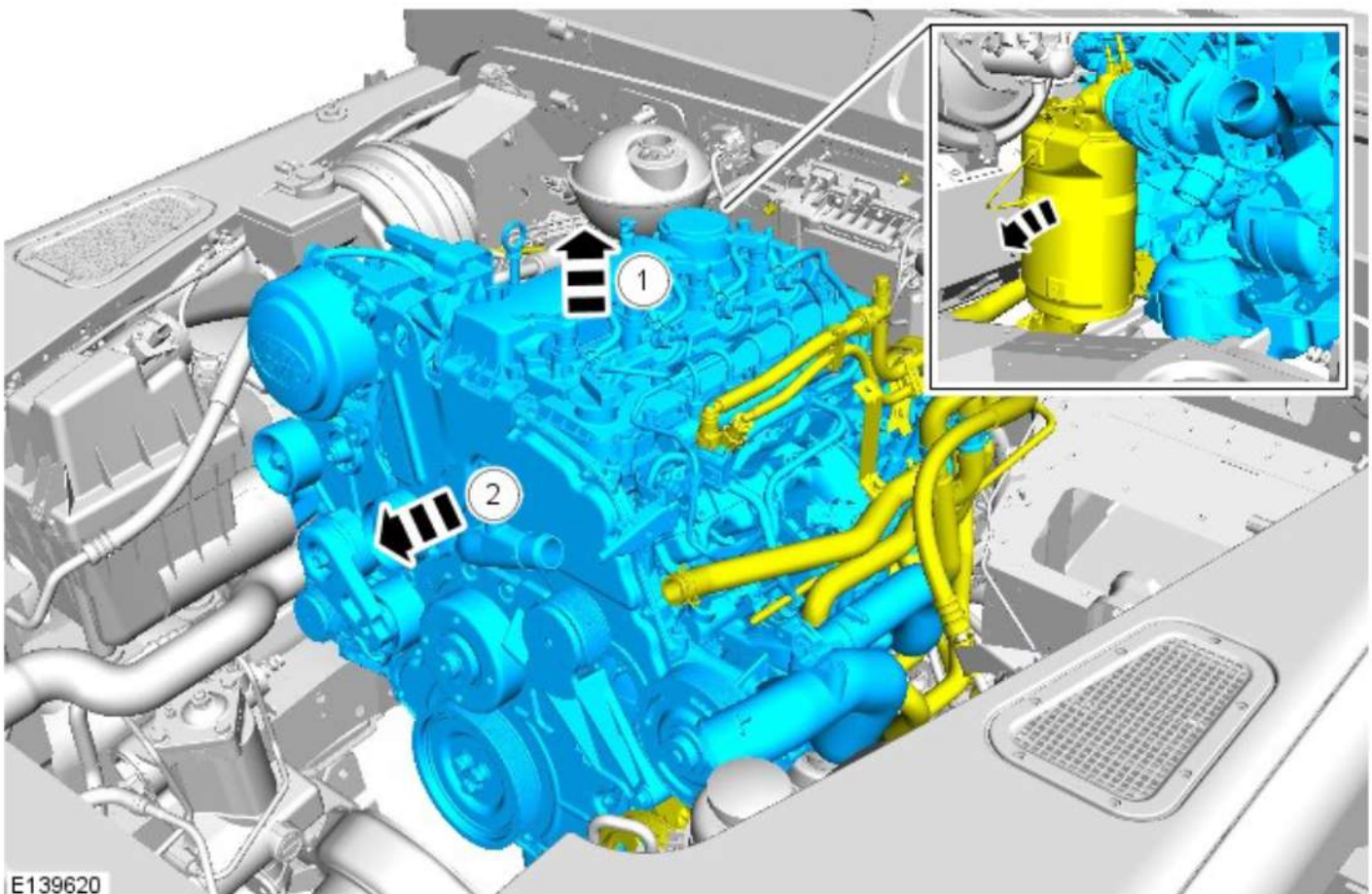
E139618

38.



E139615

39.  CAUTION: Care must be taken to avoid damage to surrounding components.



E139620

Content not found

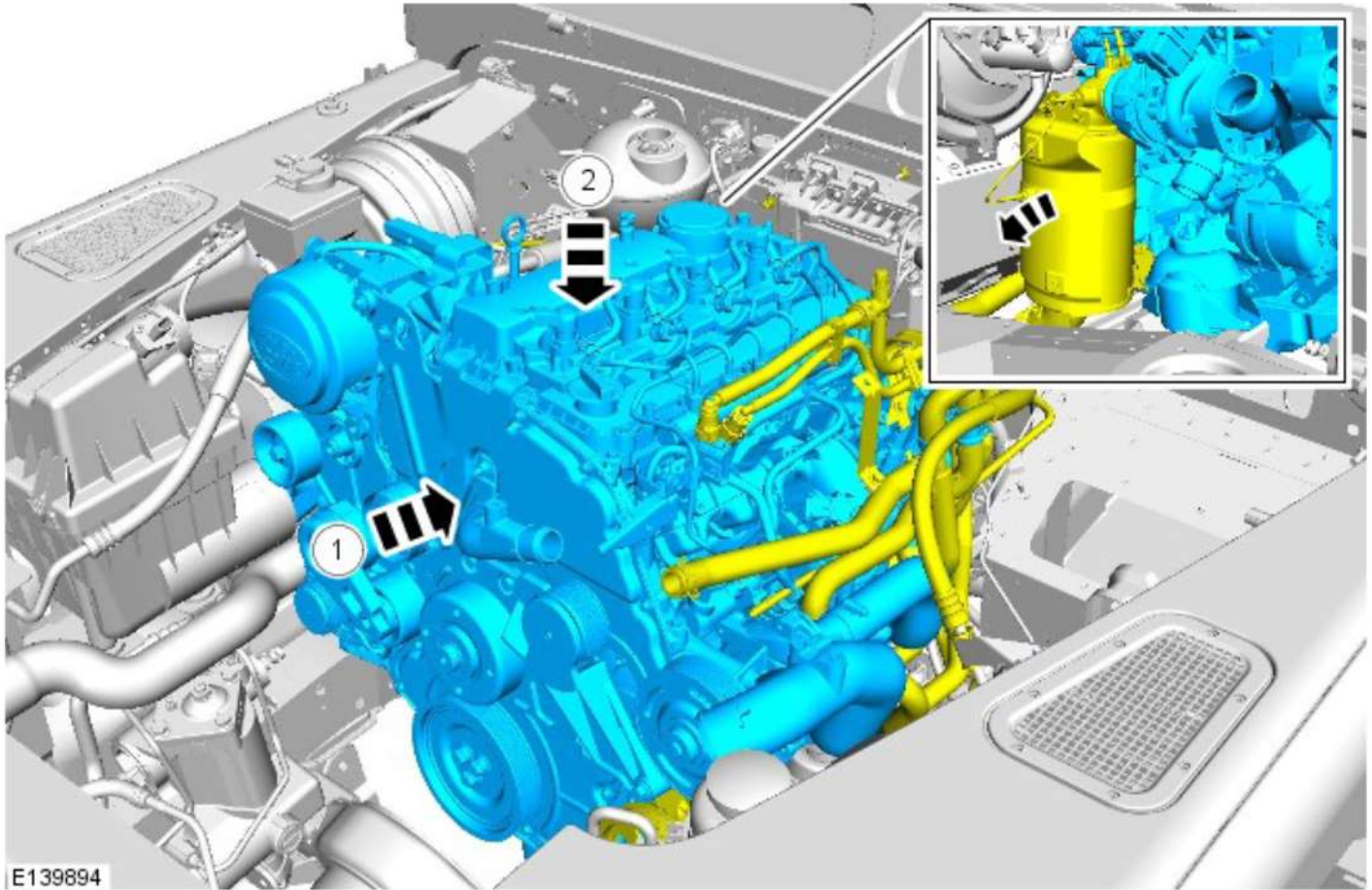
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Engine - ID4 2.2L Diesel - Engine

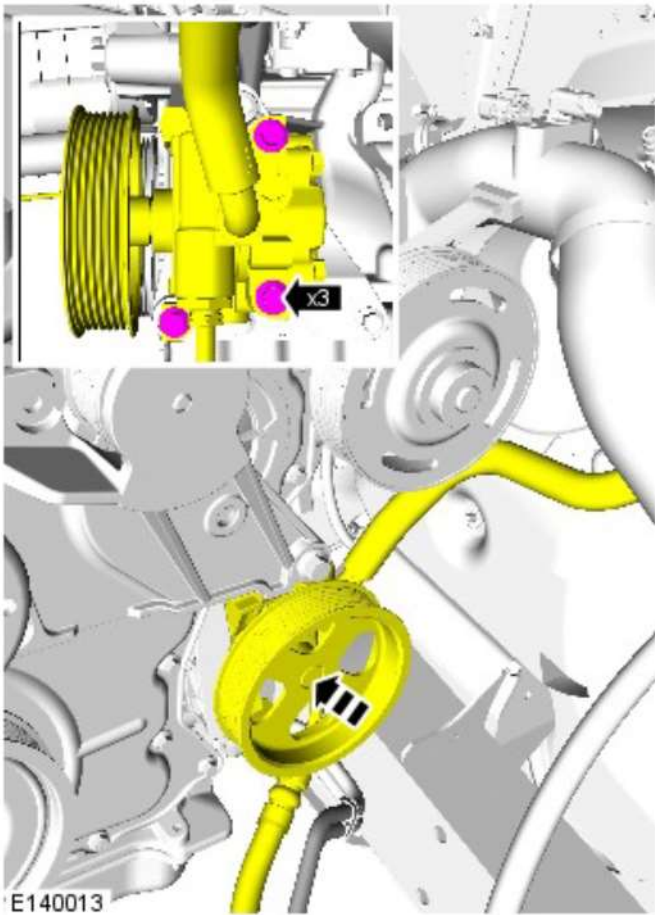
Installation

Installation

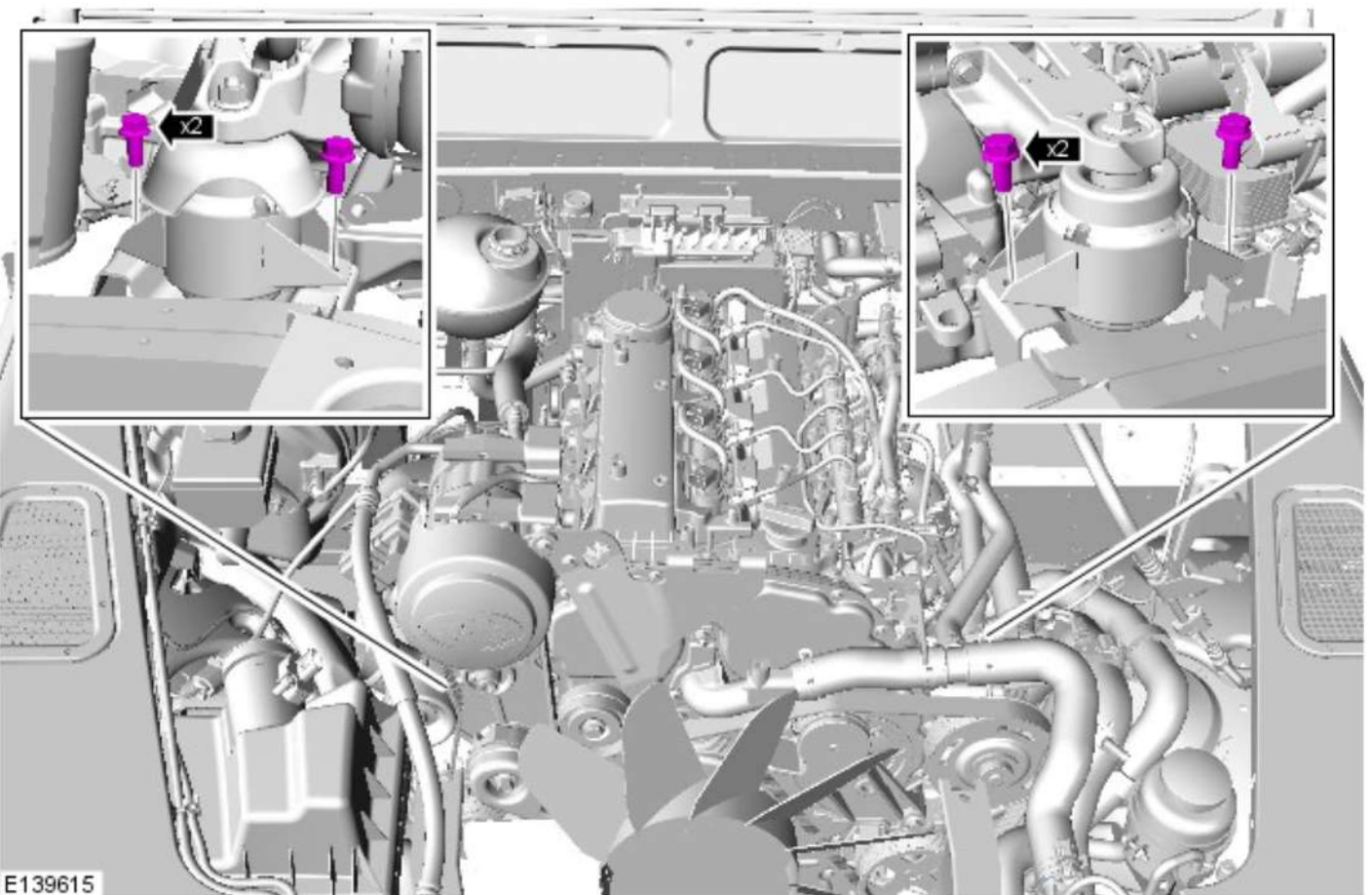
1.  CAUTION: Care must be taken to avoid damage to surrounding components.



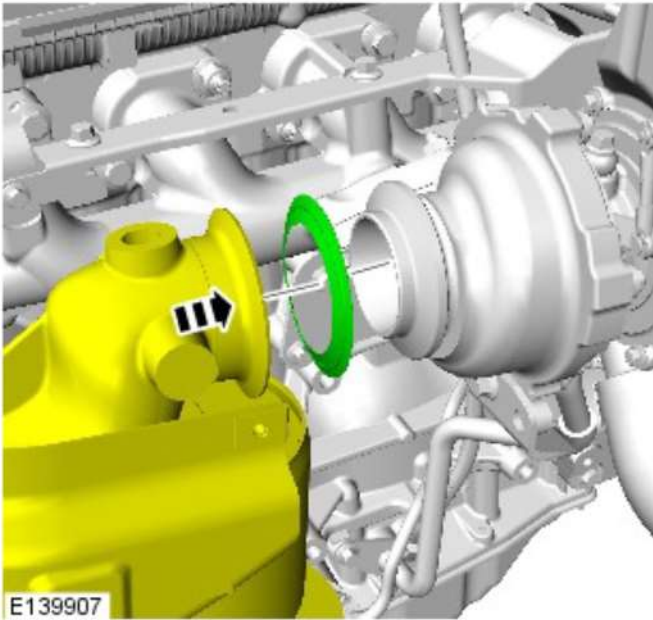
2. Torque: 23Nm



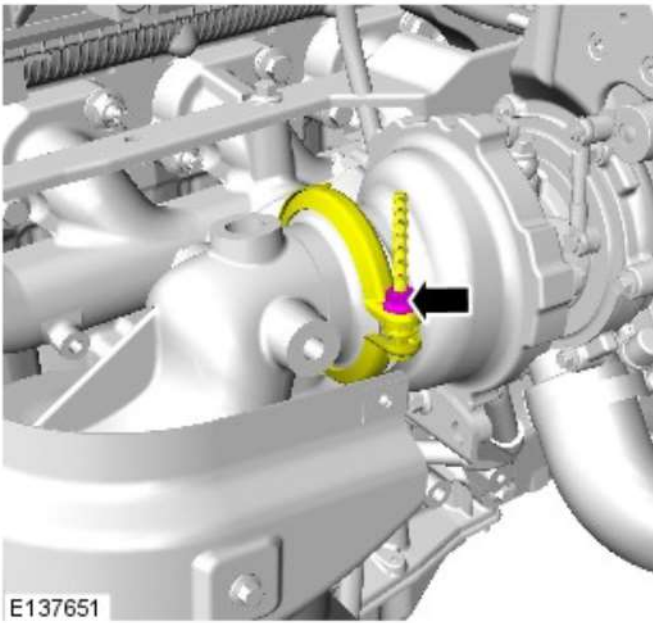
3. Torque: 80Nm



4. NOTE: Make sure a new gasket is installed.



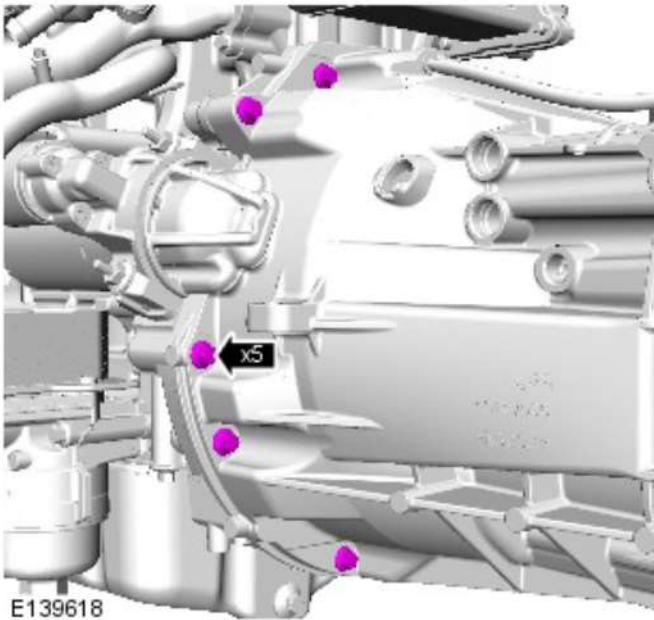
5. Torque: 10Nm



6.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

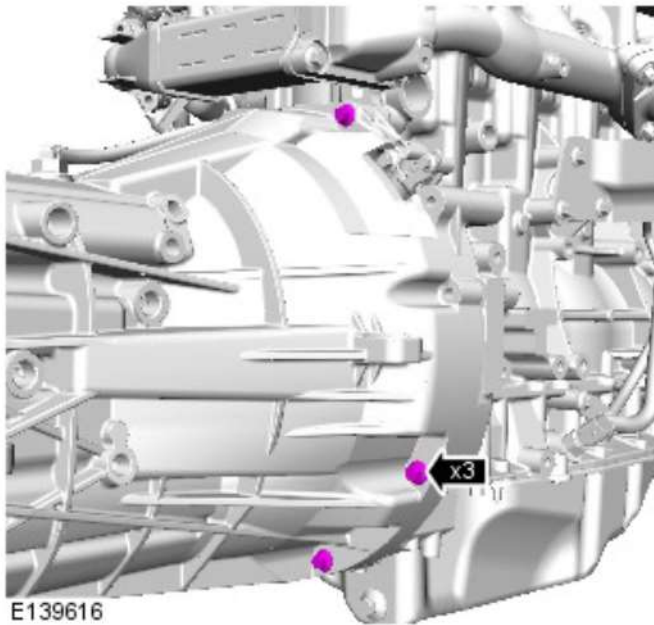
Raise and support the vehicle.

7. Torque: 40Nm



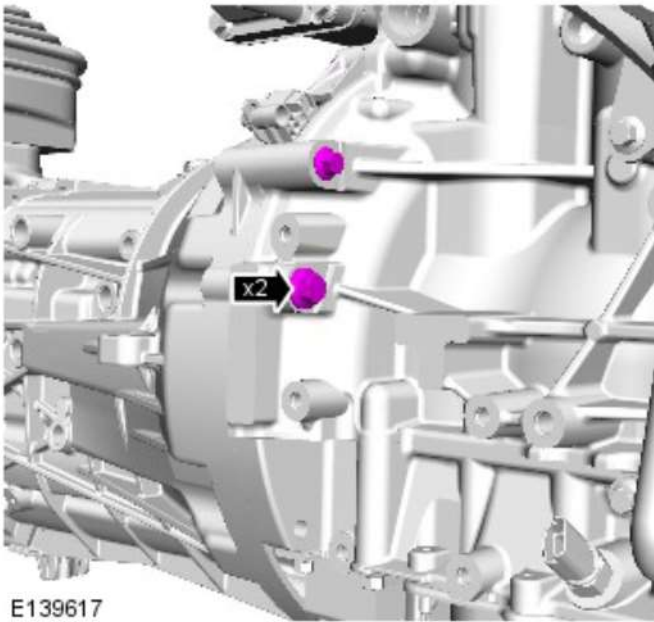
E139618

8. Torque: 40Nm

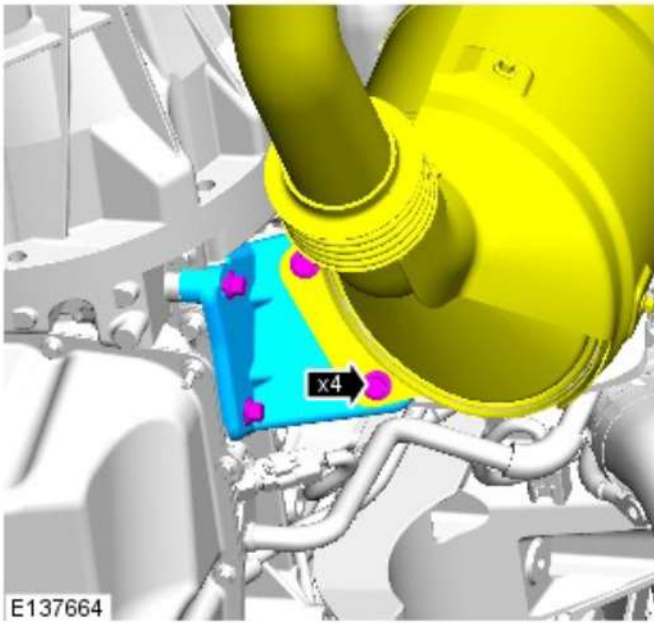


E139616

9. Torque: 40Nm

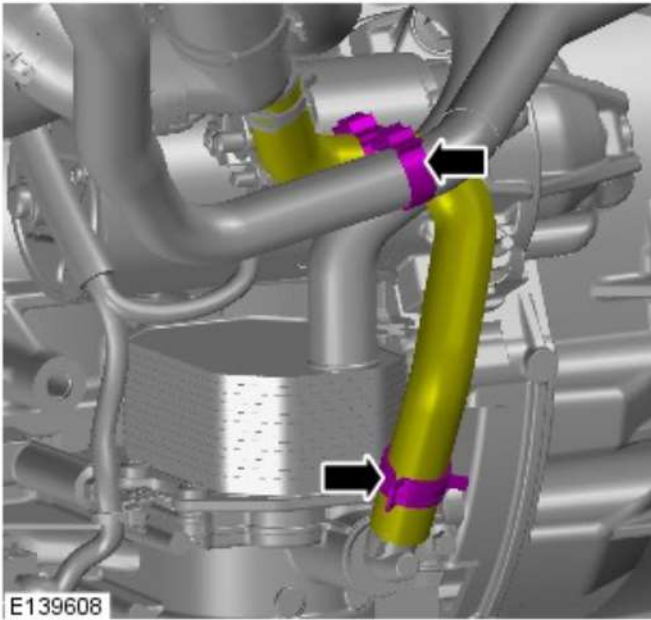


10. Torque: 25Nm

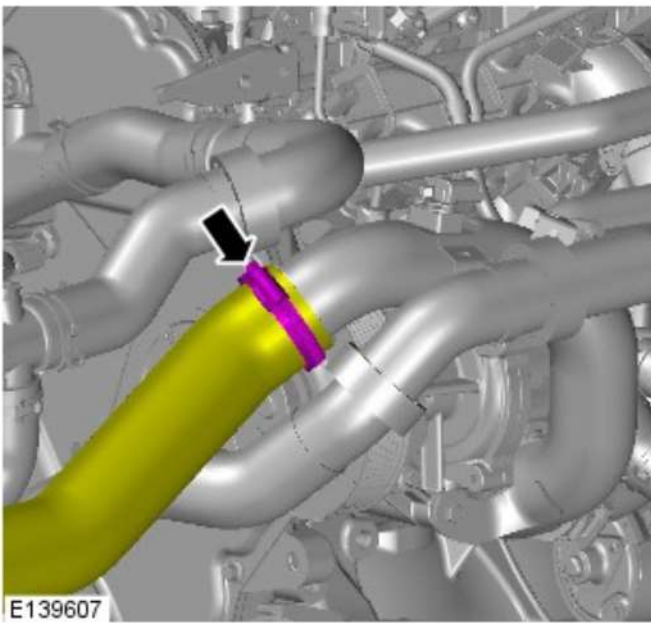


11. Lower the vehicle.

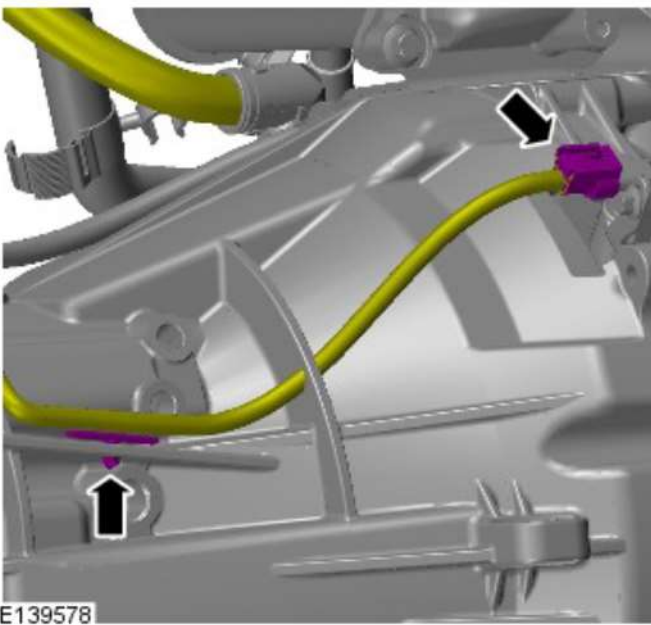
12.



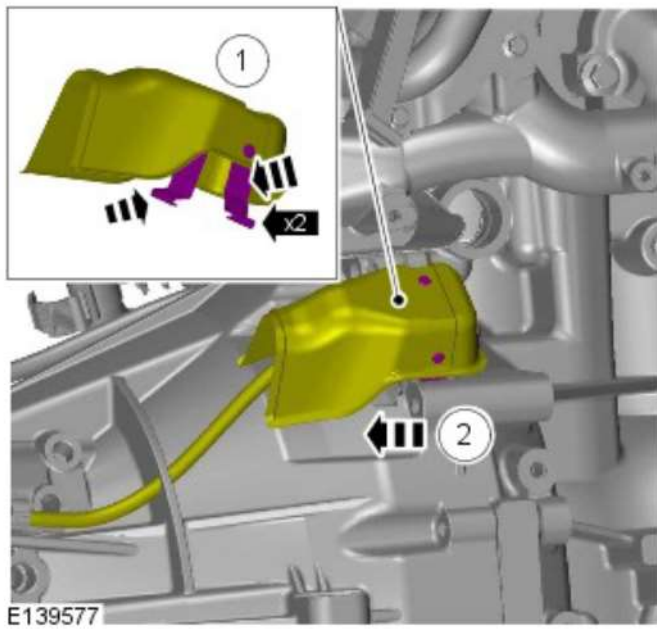
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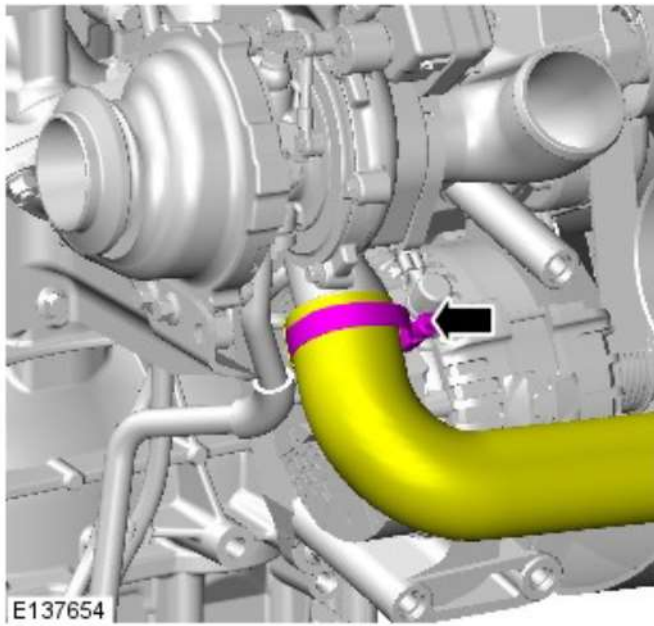
14.



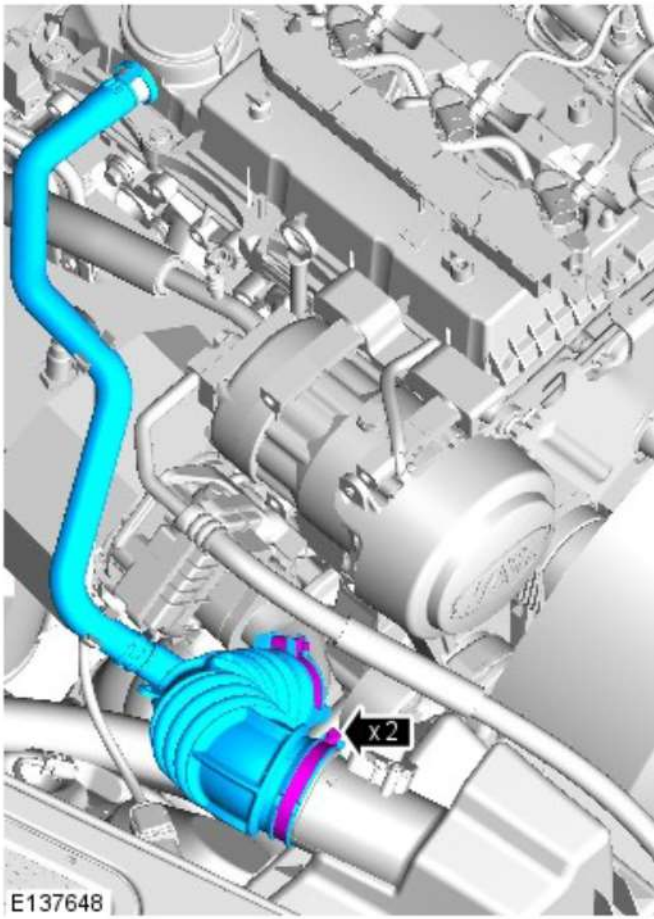
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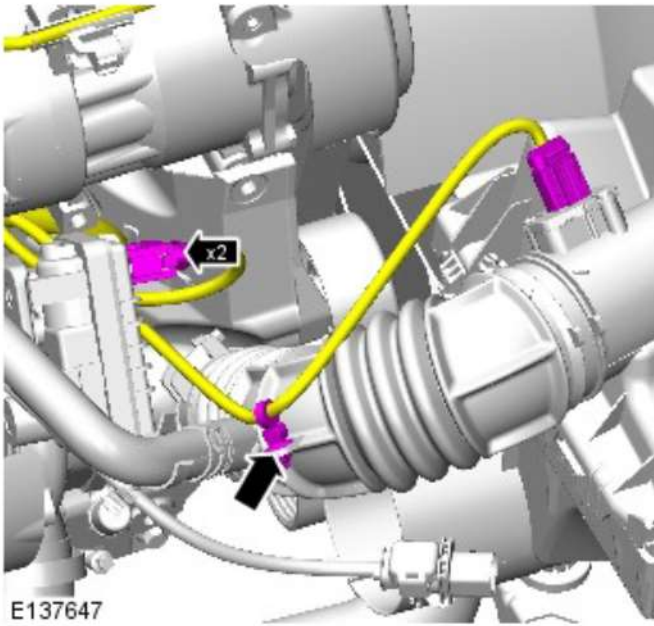
16. Torque: 3Nm



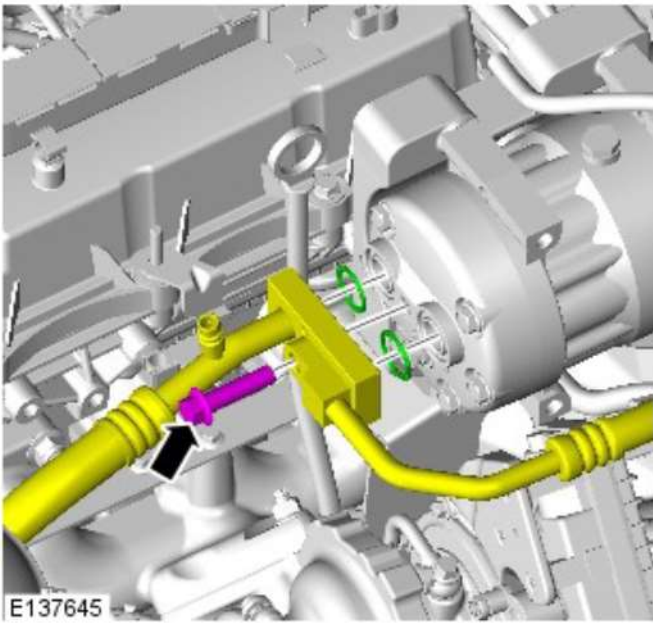
17. Torque: 3Nm



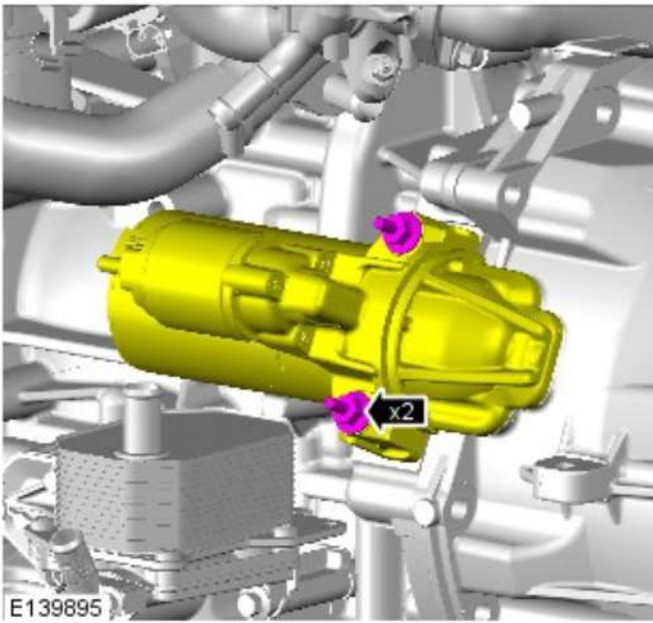
18.



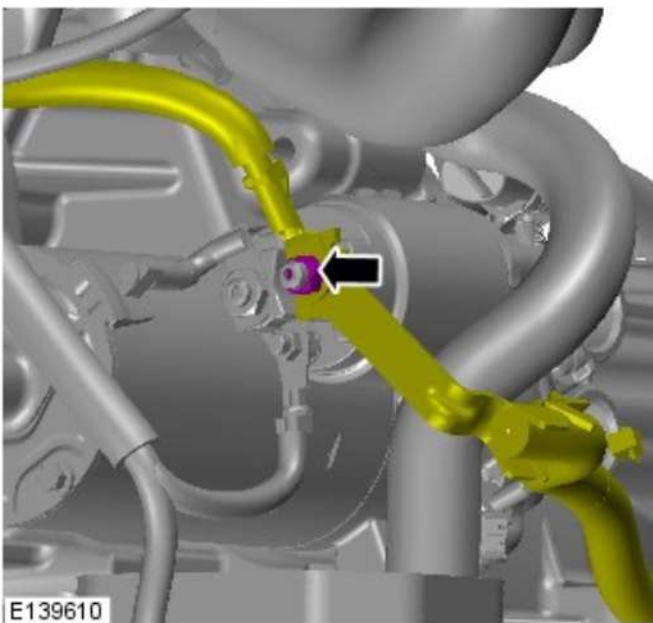
19. NOTE: Remove and discard the blanking caps.
NOTE: Make sure that a new seals are installed.
Torque: 30Nm



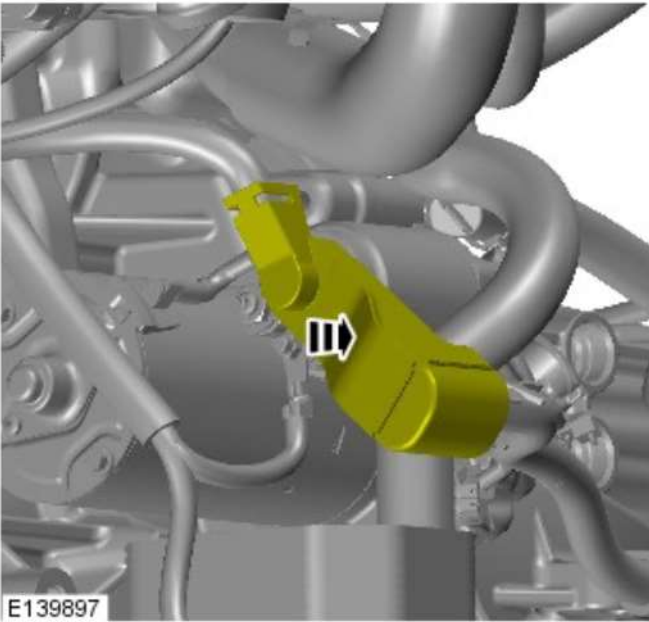
20. Torque: 35Nm



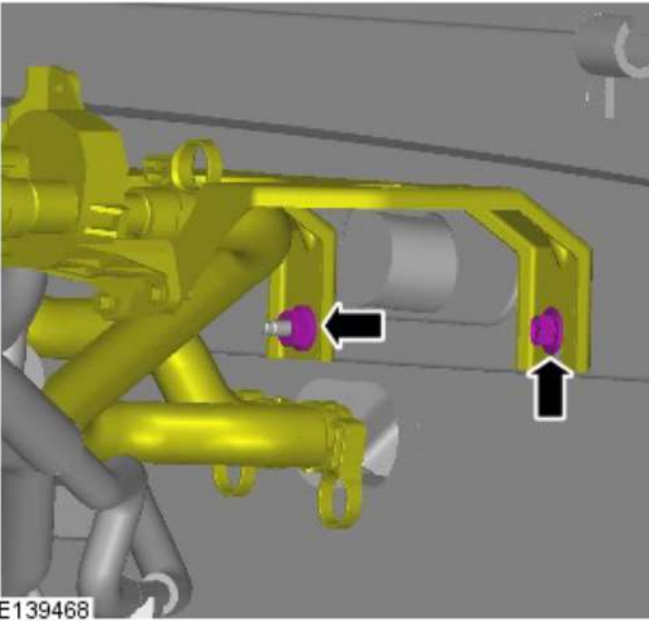
21. Torque: 12Nm



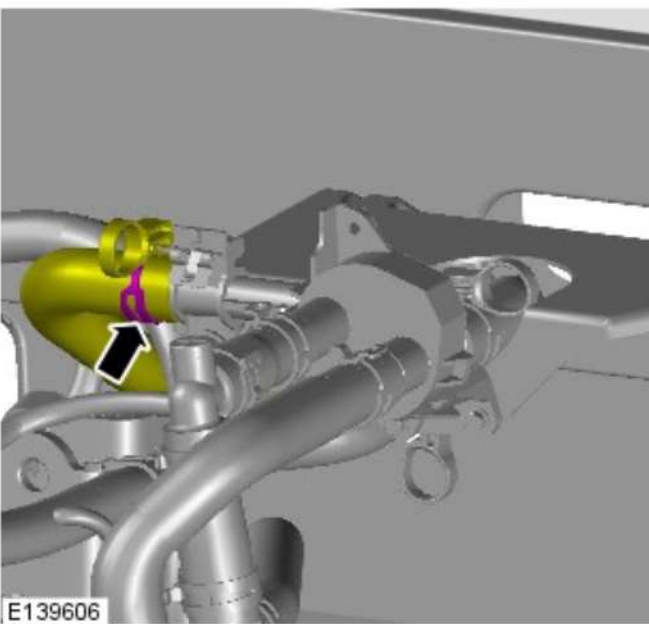
22.



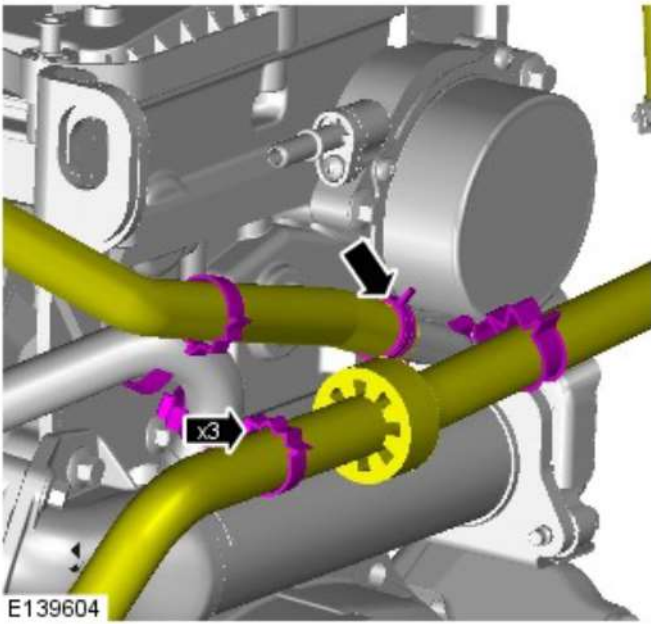
23. Torque: 10Nm



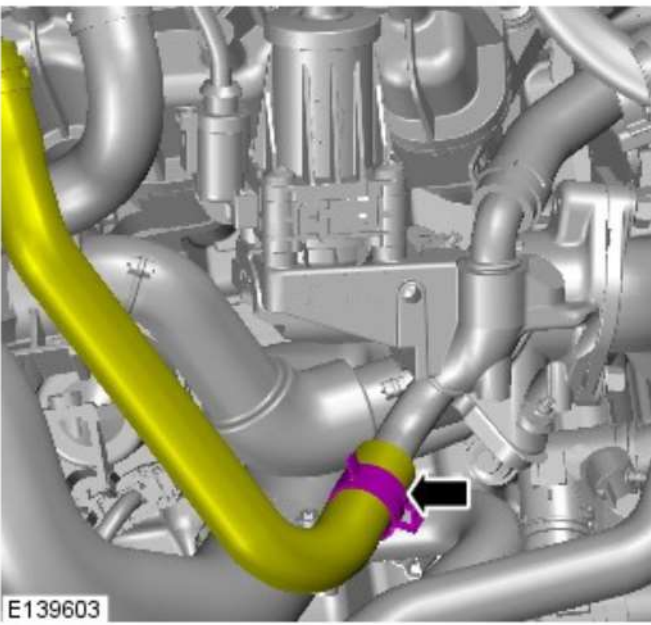
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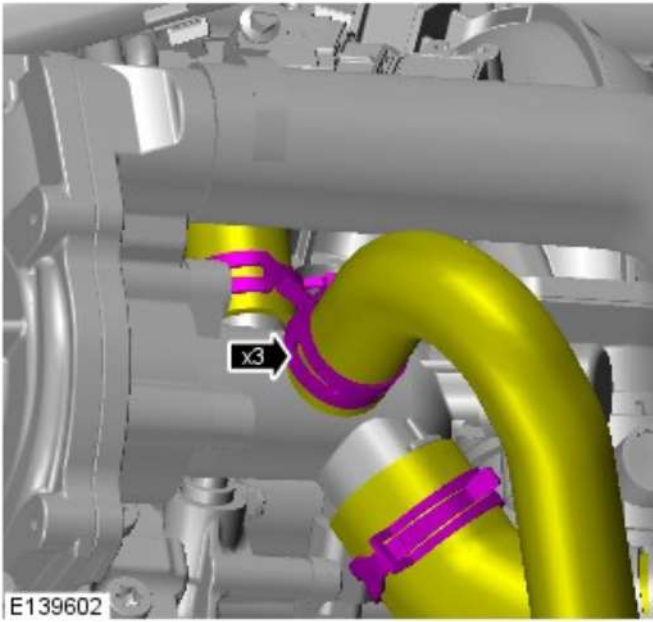
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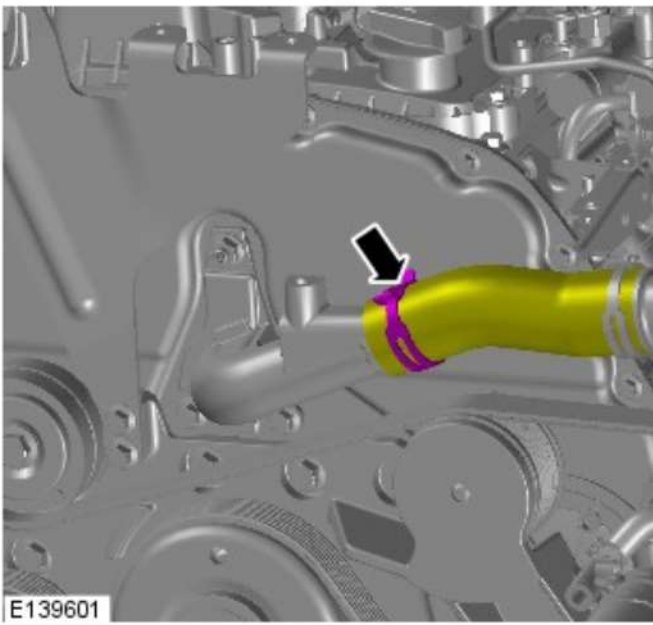
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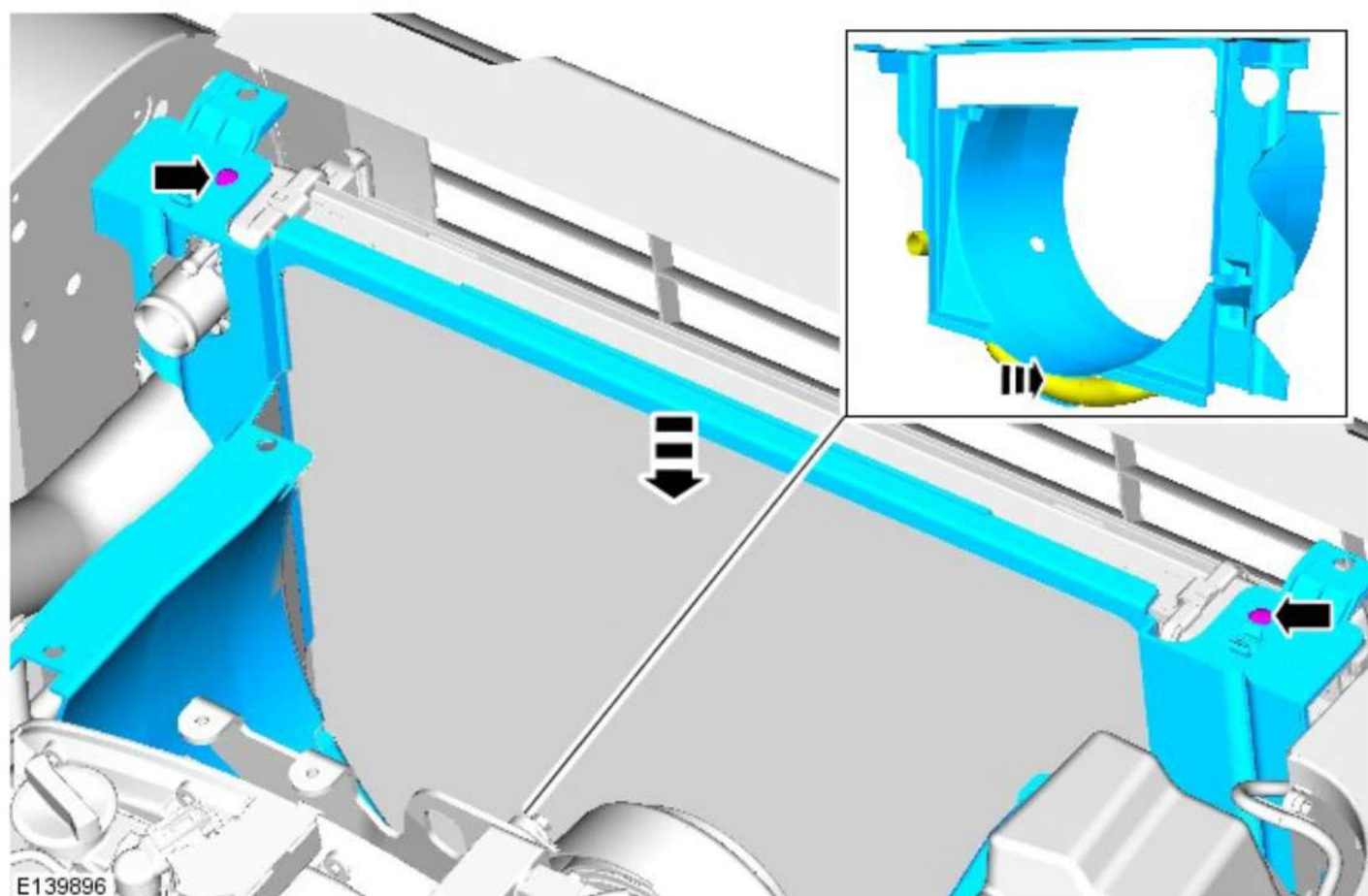
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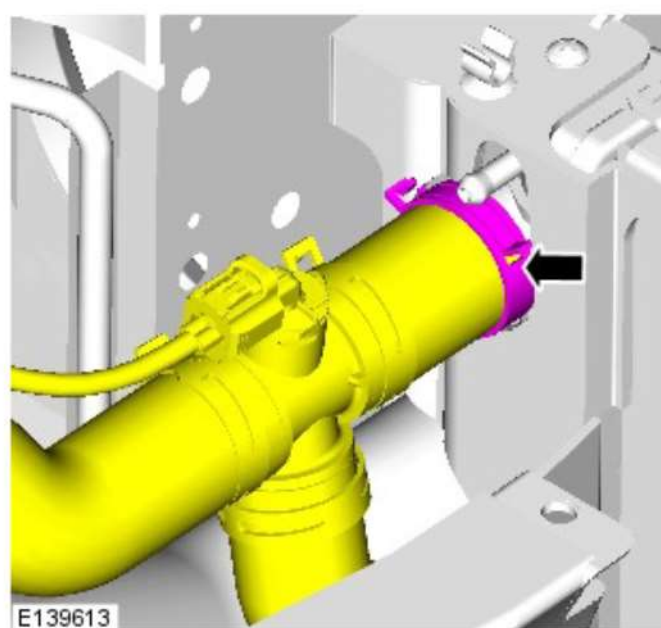
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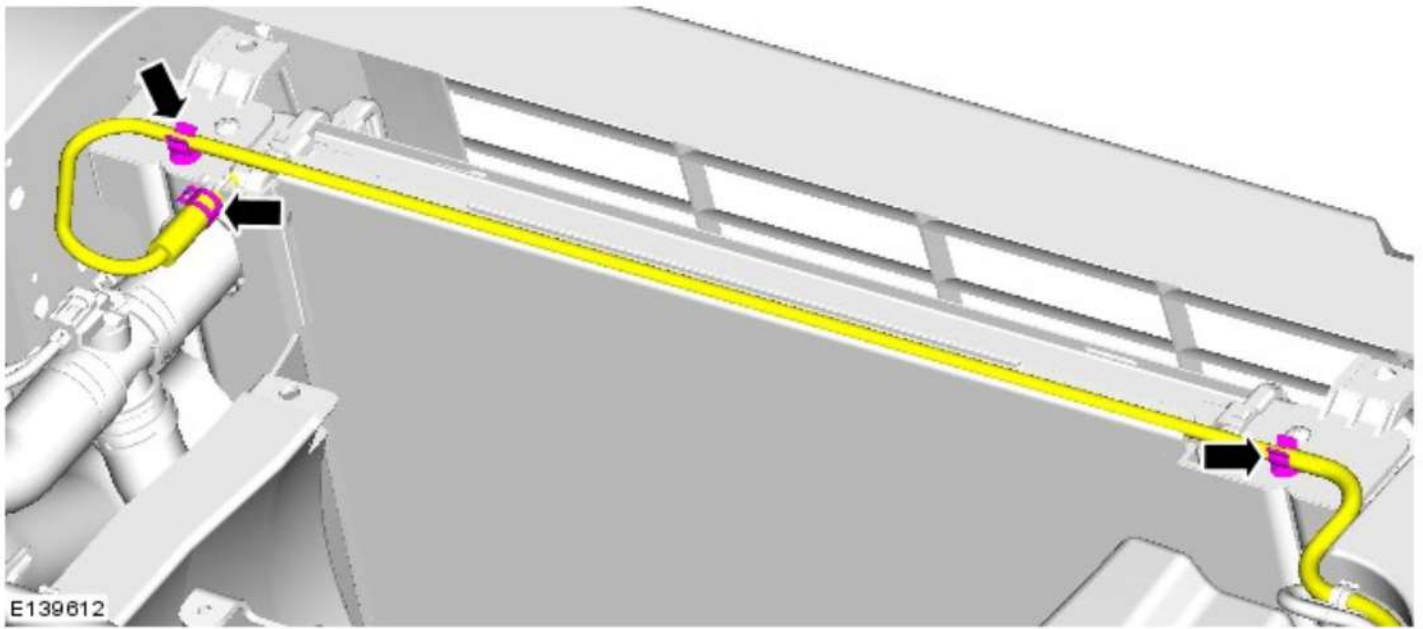
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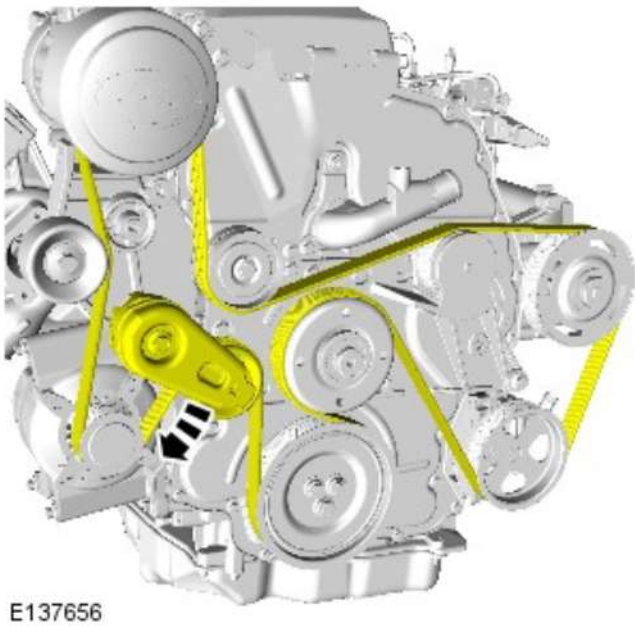
30.



31.

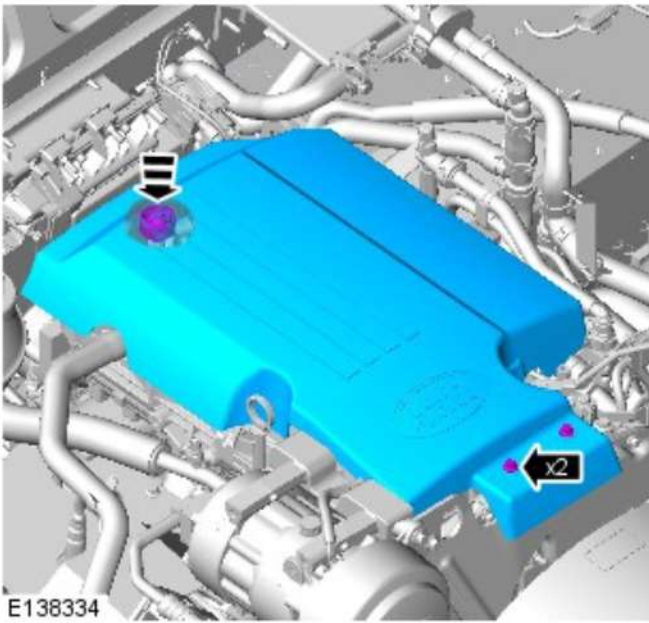


32.



33. For additional information, refer to: [Cooling Fan](#) (303-03 Engine Cooling - ID4 2.2L Diesel, Removal and Installation).

34.



35. For additional information, refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
36. For additional information, refer to: [Cooling System Draining, Filling and Bleeding](#) (303-03 Engine Cooling - ID4 2.2L Diesel, General Procedures).
37. For additional information, refer to: [Air Conditioning \(A/C\) System Recovery, Evacuation and Charging](#) (412-00 Climate Control System - General Information, General Procedures).