

2016.0 RANGE ROVER (LG), 303-01

ENGINE - TDV6 3.0L DIESEL - GEN 2/TDV6 3.0L DIESEL

ENGINE (G2059647)

DISASSEMBLY

DISASSEMBLY

SPECIAL TOOL(S)



100-012

Slide Hammer



303-021

303-021

Engine support
bracket



303-1124

E54549

303-1124

Holding Tool,
Camshaft Front
Pulley



303-1126

E54551

303-1126

Timing Peg,
Camshaft Pulley



E193495

303- 1141

Engine lifting
kit



E193494

303-1141-01

Engine lifting
bracket - Rear



E64849

303-D121

Puller, General
Purpose



E116924

310-213

Fuel Injector
Removal Adapter



E130680

JLR-303-1120-01

Adapter, Crankshaft
Front Seal

GENERAL EQUIPMENT

EQUIPMENT NAME

Engine hoist (1 tonne minimum capacity)

PART(S)

STEP	REPLACE PART / RENEW PART	PART NAME
Step 19	Renew Part	Steering column lower shaft lower bolt
Step 23	Renew Part	Air conditioning pipe to compressor O-ring seals
Step 40	Renew Part	Engine mount to engine mount bracket nut
Step 41	Renew Part	Engine mount to engine mount bracket nut
Step 59	Renew Part	EGR inlet pipe to EGR valve gasket
Step 78	Renew Part	Exhaust gas recirculation pipe gasket
Step 83	Renew Part	Exhaust manifold to EGR valve gasket
Step 88	Renew Part	Exhaust manifold cross-over pipe nuts
Step 88	Renew Part	Exhaust manifold cross-over pipe gaskets
Step 89	Renew Part	Exhaust manifold cross-over pipe nuts and bolts
Step 90	Renew Part	Turbocharger oil feed pipe banjo bolt
Step 90	Renew Part	Turbocharger oil feed pipe banjo bolt washers
Step 91	Renew Part	Turbocharger coolant pipe O-ring seal
Step 93	Renew Part	Turbocharger coolant pipe O-ring seal
Step 94	Renew Part	Turbocharger oil return pipe gasket
Step 95	Renew Part	Exhaust manifold to cylinder head nuts
Step 96	Renew Part	Exhaust manifold gasket
Step 97	Renew Part	Turbocharger oil feed pipe banjo bolt
Step 97	Renew Part	Turbocharger oil feed pipe banjo bolt

		washers
Step 97	Renew Part	Turbocharger oil return pipe gasket
Step 97	Renew Part	Oil return pipe O-ring seal
Step 98	Renew Part	Exhaust manifold to turbocharger nuts
Step 98	Renew Part	Turbocharger to exhaust manifold gasket
Step 99	Renew Part	Exhaust manifold to cylinder head nuts
Step 99	Renew Part	Exhaust manifold gasket
Step 103	Renew Part	Turbocharger oil supply tube to engine O-rings
Step 106	Renew Part	Fuel injector high pressure pipes
Step 107	Renew Part	Fuel injector high pressure pipes
Step 108	Renew Part	Fuel rail balance pipe
Step 110	Renew Part	Brake vacuum pump seal
Step 114	Renew Part	Fuel injector O-ring seals
Step 114	Renew Part	Fuel injector washers
Step 125	Renew Part	Timing belt and tensioner kit
Step 131	Renew Part	Camshaft cover gasket
Step 137	Renew Part	Camshaft cover gasket
Step 146	Renew Part	Camshaft seal
Step 156	Renew Part	Camshaft seal
Step 162	Renew Part	Cylinder head bolts
Step 162	Renew Part	Cylinder head gasket

Step 164	Renew Part	Oil cooler O-ring seals
Step 167	Renew Part	Crankshaft pulley bolt
Step 167	Renew Part	Crankshaft pulley friction washer
Step 169	Renew Part	Engine coolant pump gasket
Step 174	Renew Part	Oil pan gasket
Step 175	Renew Part	Rear crankshaft seal
Step 179	Renew Part	Crankshaft front oil seal
Step 181	Renew Part	Oil pump gasket

CAUTION:

Before disconnecting any components, make sure the area is clean and free from foreign material. When disconnected all openings must be sealed.

NOTE:

- Some variation in the illustrations may occur, but the essential information is always correct.
- Some components shown removed for clarity.

1. Raise and support the vehicle.
2. Disconnect the battery ground cable.

Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).

3. Remove the hood.

Refer to: [Hood](#) (501-02 Front End Body Panels, Removal and Installation).

4. Drain the engine oil.

Refer to: [Engine Oil Draining and Filling](#) (303-01A Engine - TDV6 3.0L Diesel - Gen 2/TDV6 3.0L Diesel, General Procedures).

5. Remove the secondary bulkhead panel.

Refer to: [Secondary Bulkhead Centre Panel - TDV6 3.0L Diesel](#) (501-02 Front End Body Panels, Removal and Installation).

6. Remove the throttle body.

Refer to: [Intake Air Shutoff Throttle](#) (303-04A Fuel Charging and Controls - TDV6 3.0L Diesel, Removal and Installation).

7. Remove the radiator assembly.

Refer to: [Radiator](#) (303-03A Engine Cooling - TDV6 3.0L Diesel - Gen 2/TDV6 3.0L Diesel, Removal and Installation).

8. Always follow the Diesel fuel system health and safety precautions, when carrying out any repairs to the fuel system.

Refer to: [Diesel Fuel System Health and Safety Precautions](#) (100-00 General Information, Description and Operation).

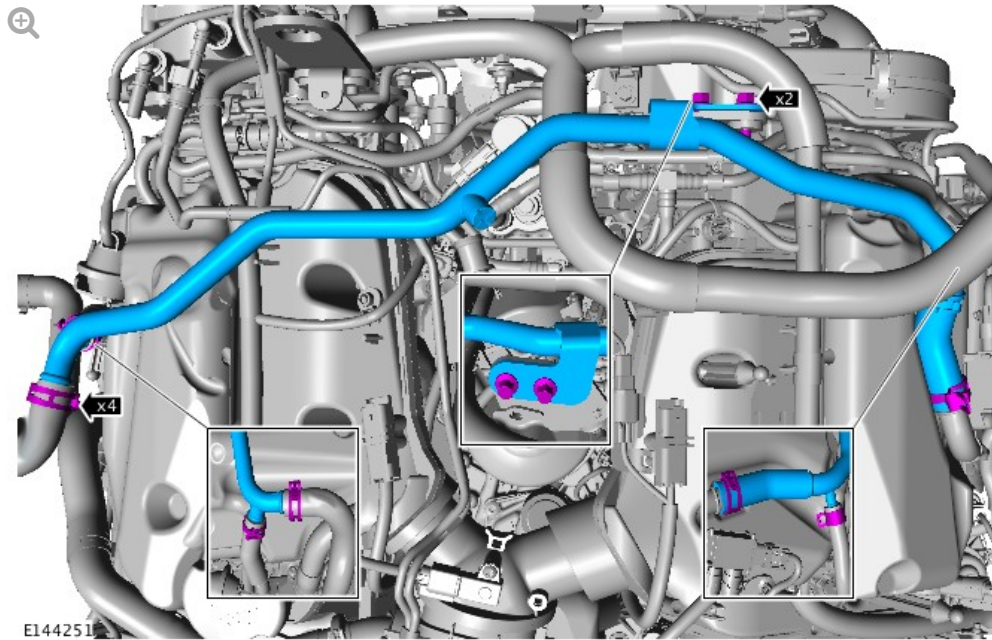
9. Using the pneumatic vacuum gun, vacuum foreign material from the high-pressure fuel supply lines, the fuel injectors and the fuel rail.

Refer to: [Fuel Injection Component Cleaning](#) (303-04A Fuel Charging and Controls - TDV6 3.0L Diesel, General Procedures).

10.

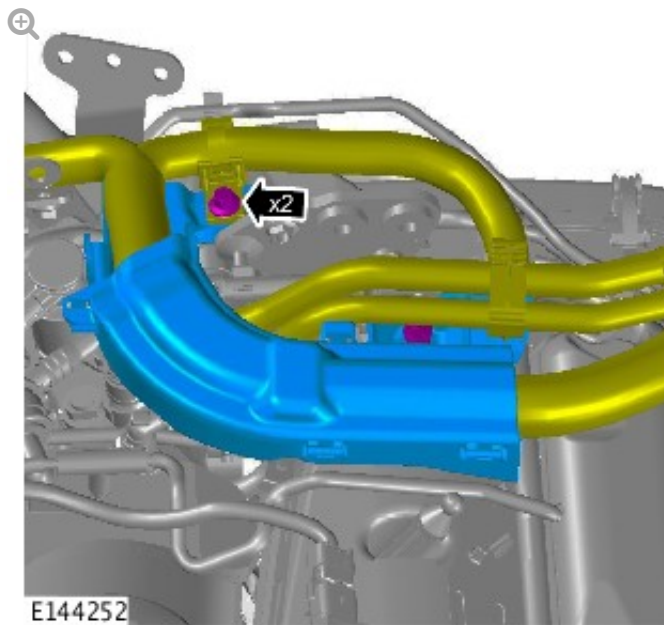
CAUTION:

Be prepared to collect escaping coolant.



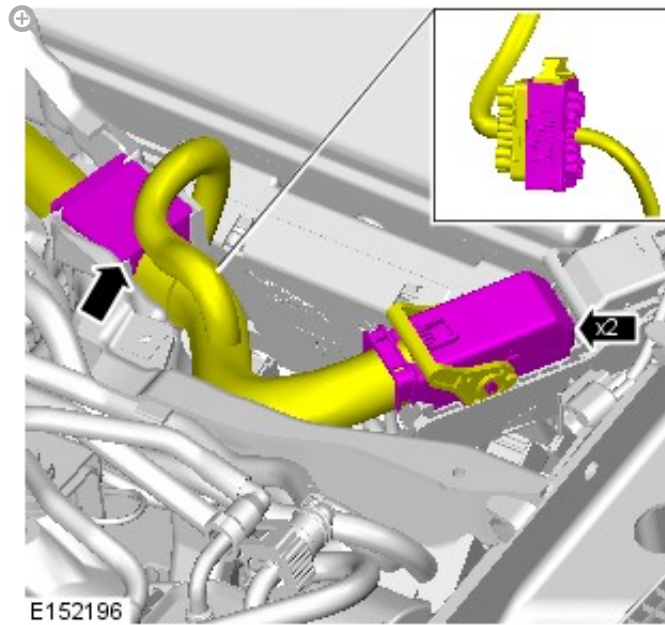
Remove the EGR coolant cross-over pipe.

11.



Release wiring harness.

12.

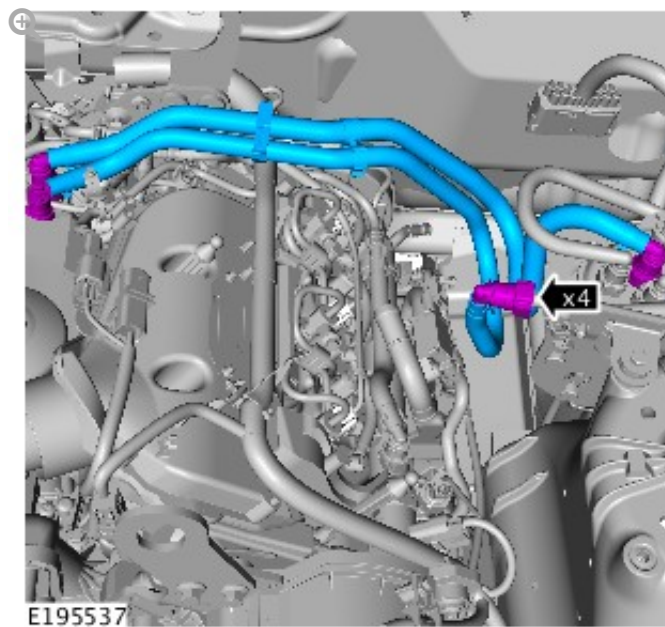


Disconnect electrical connectors.

13.

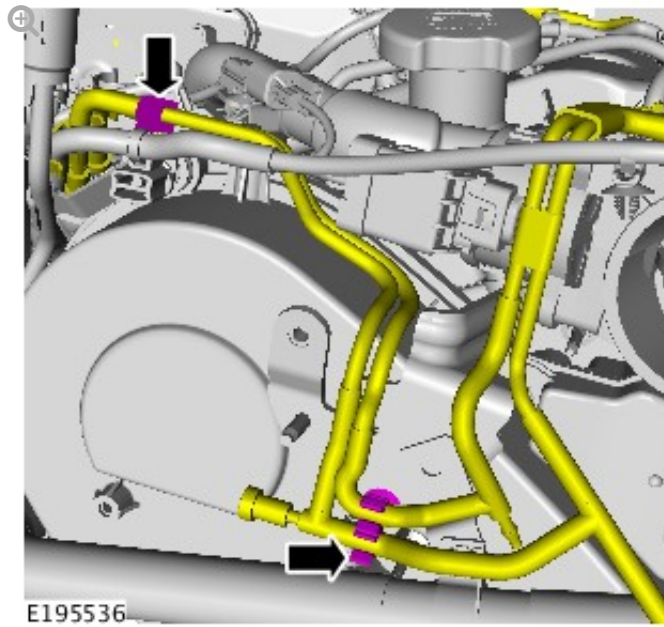
CAUTION:

Be prepared to collect escaping fuel.



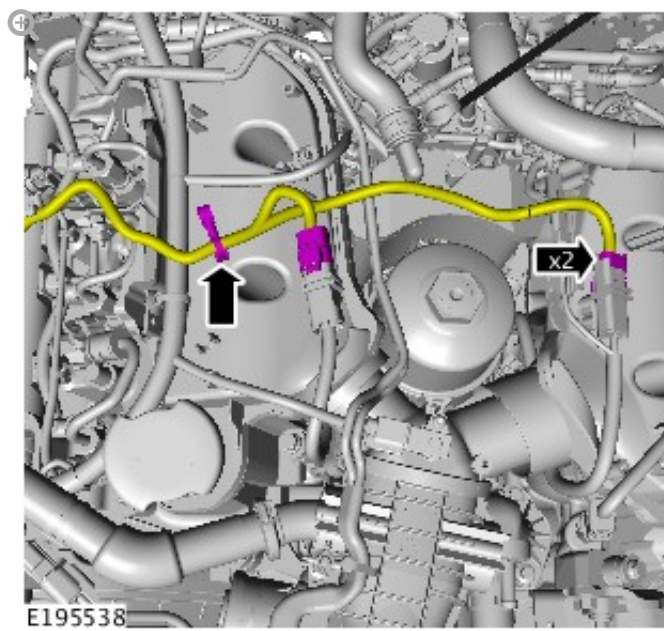
Release the fuel pipes.

14.



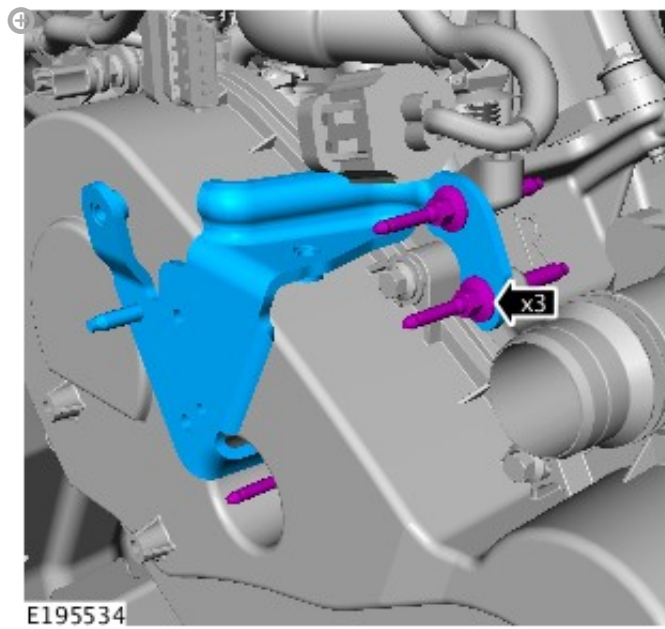
Release the pipes.

15.

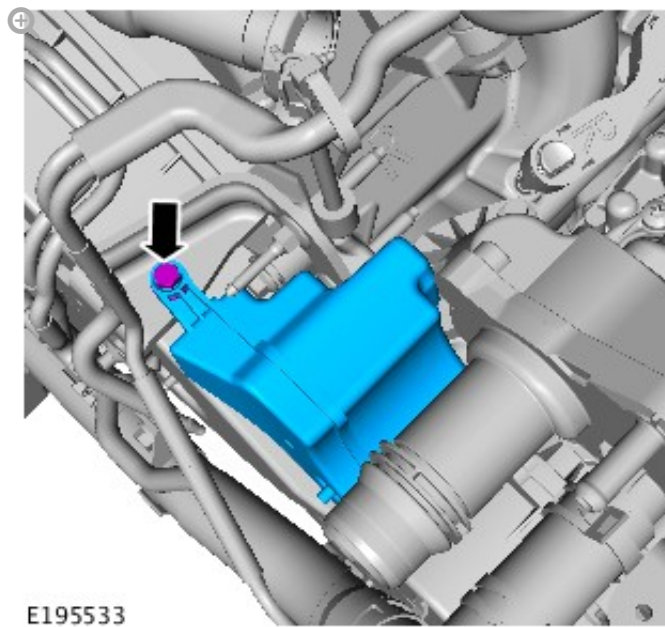


Release the wiring harness.

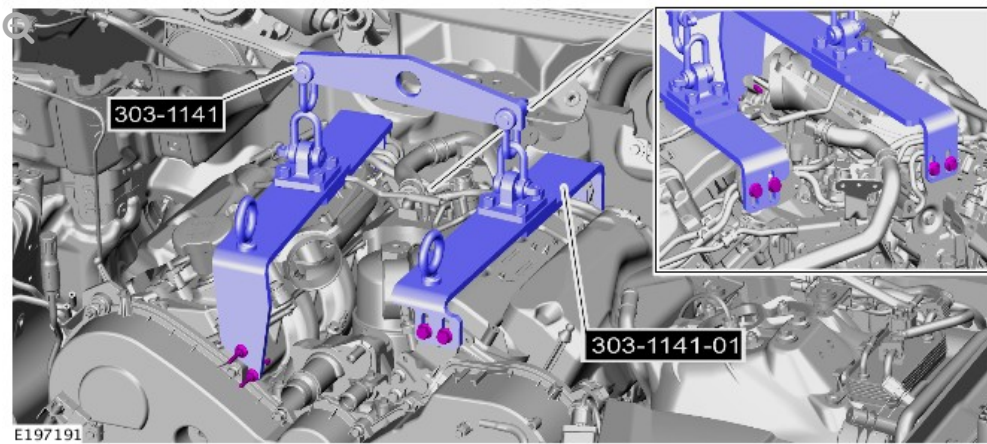
16.



17.



18.



1. Install the special tool.

Special Tool(s): 303-1141-01, 303-1141

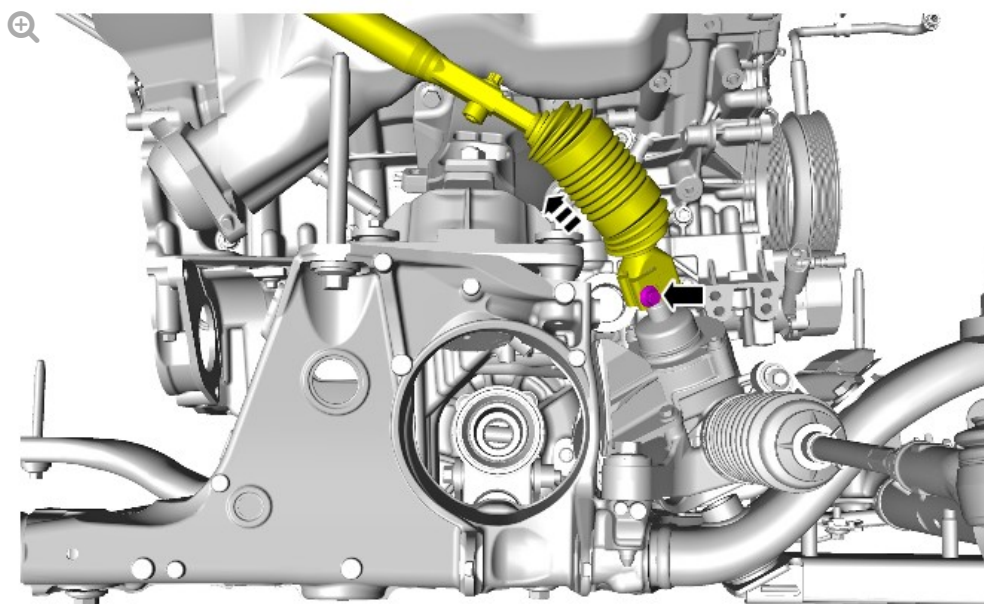
19.

CAUTION:

Discard the bolt.

NOTE:

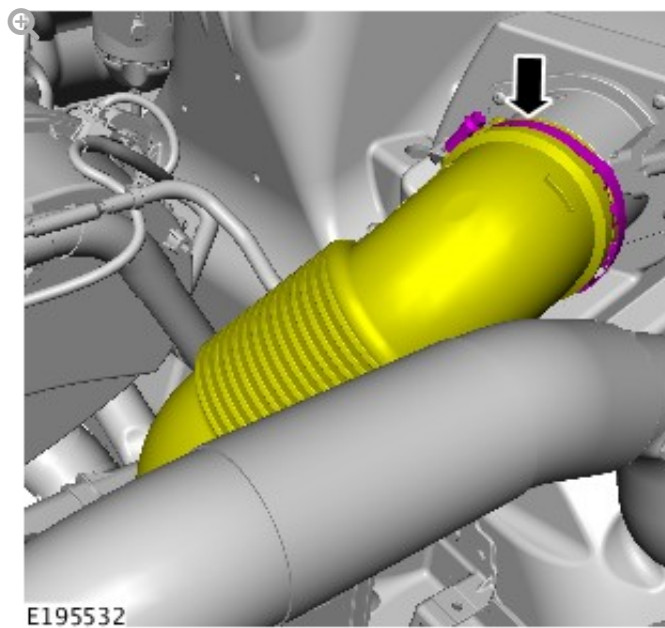
RHD shown, LHD is similar.



Align the steering wheel to straight ahead.

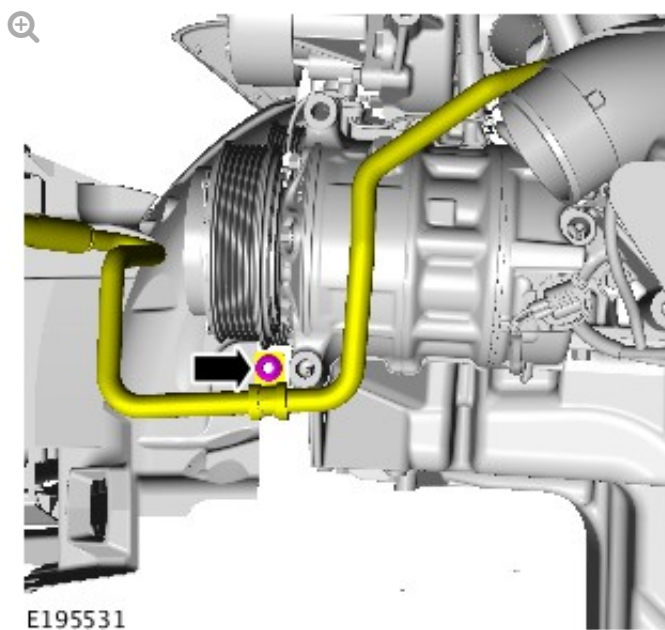
Renew Part: [Steering column lower shaft lower bolt](#).

20.

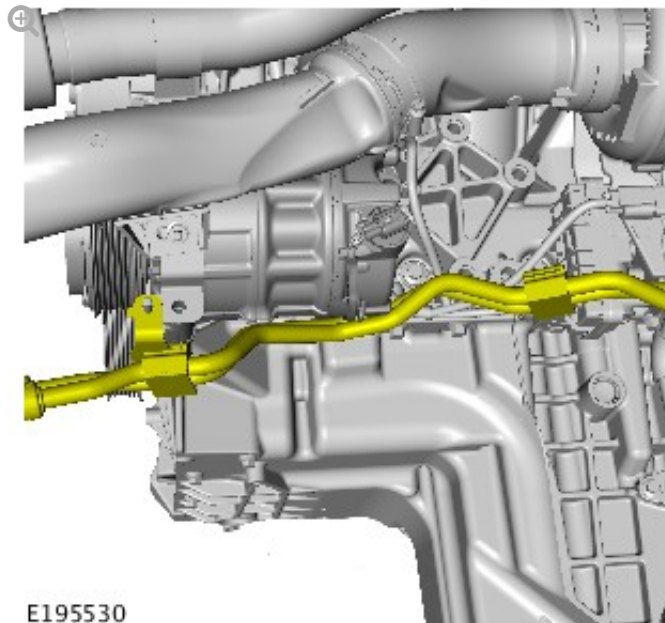


Release the air pipe.

21.

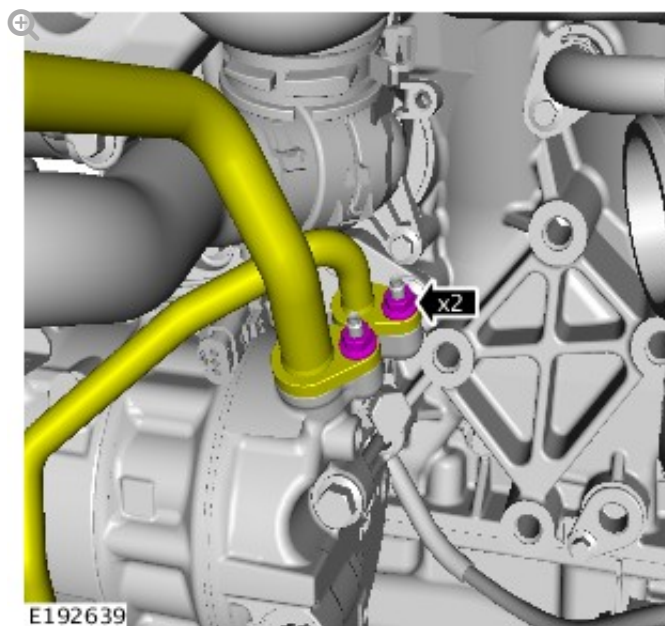


22.



Release the air conditioning pipe.

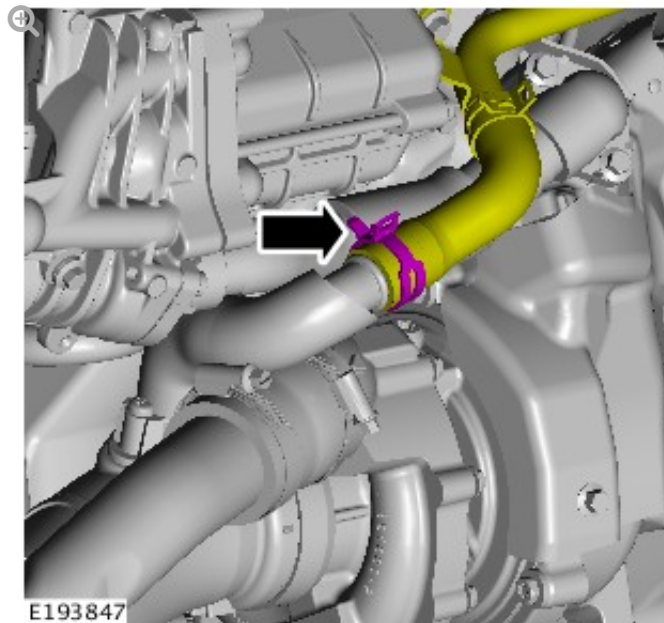
23.



- Remove the nuts and disconnect the A/C pipes.
- Discard the O-ring seals.

Renew Part: [Air conditioning pipe to compressor O-ring seals.](#)

24.

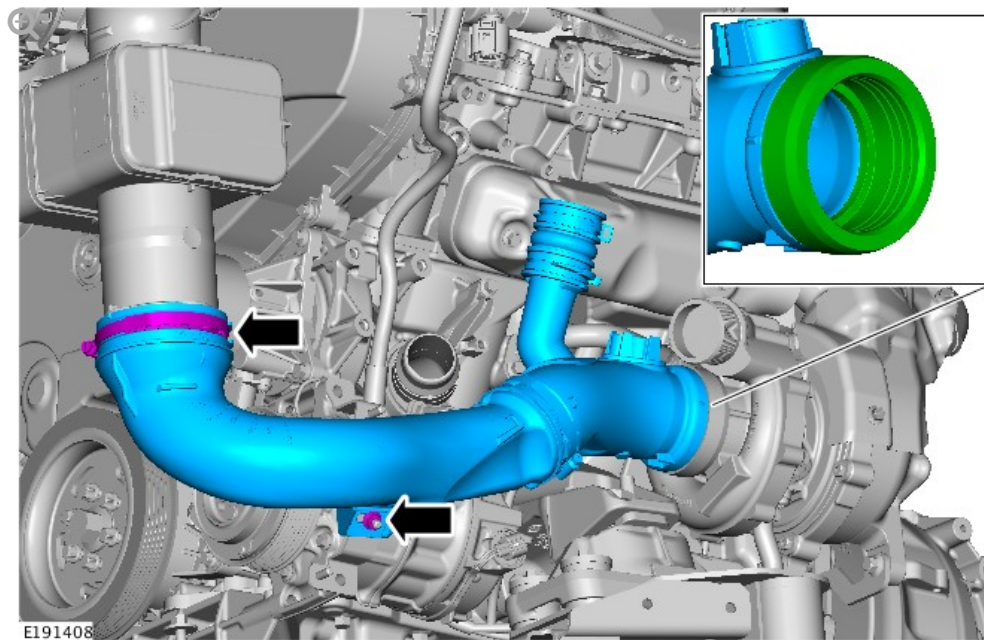


Release the turbo pipe.

25.

NOTE:

Inspect the seal, replace if damaged.

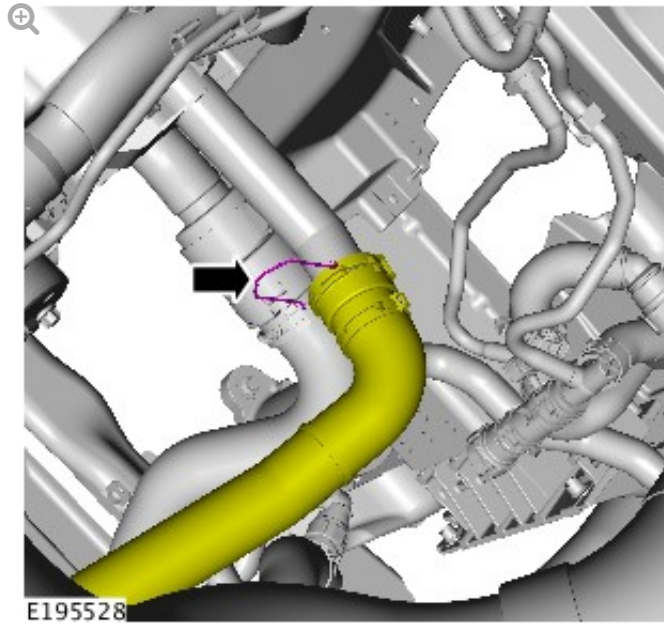


Release the turbo pipe.

26.

CAUTION:

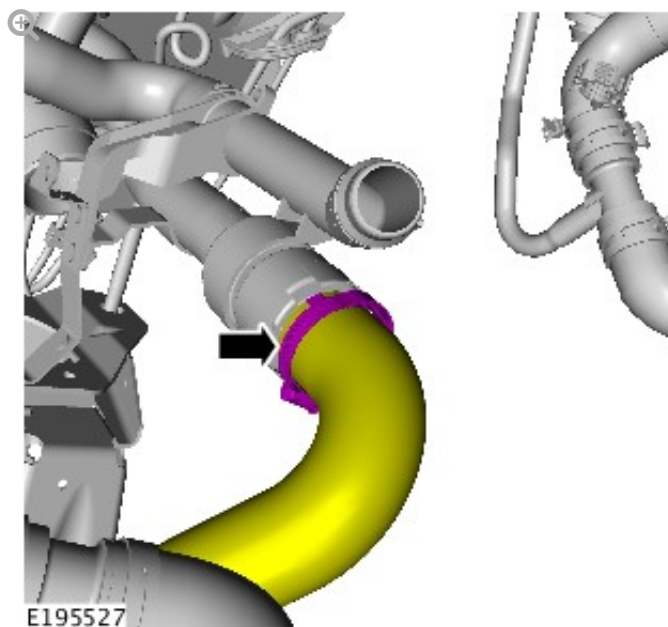
Be prepared to collect escaping coolant.



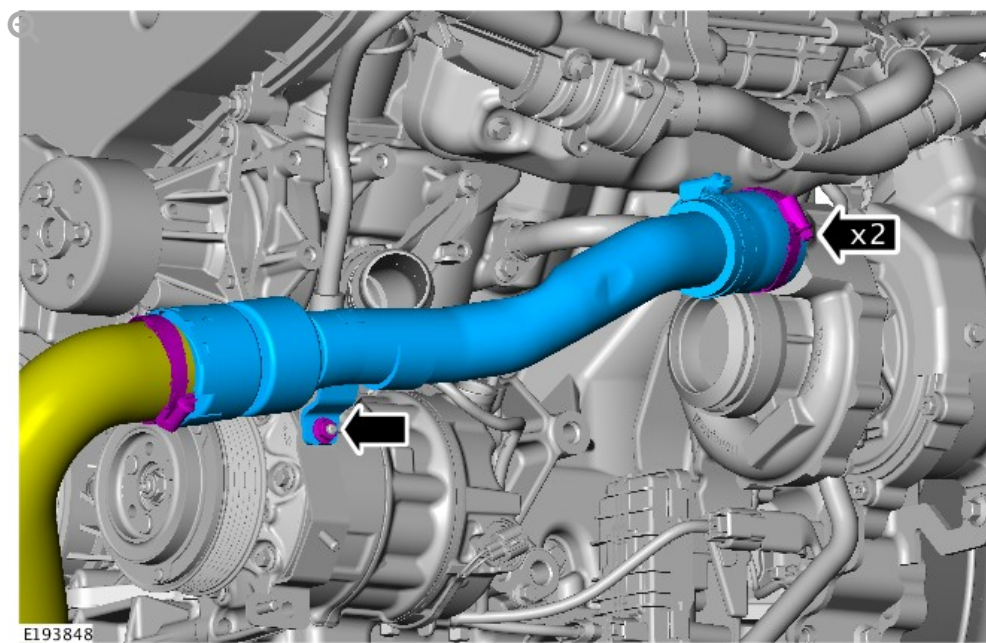
27.

CAUTION:

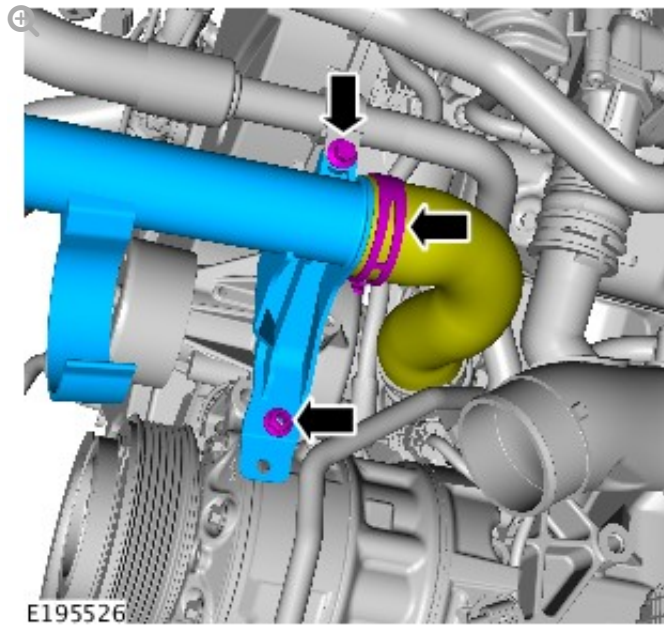
Be prepared to collect escaping coolant.



28.



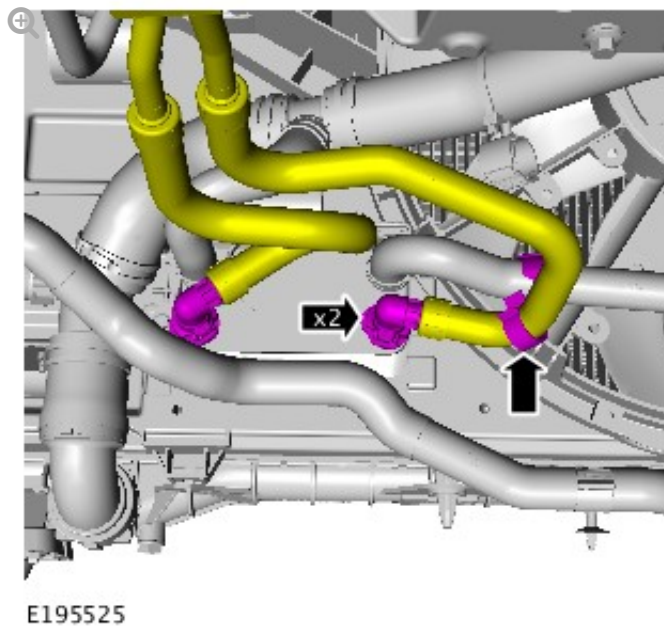
29.



30.

WARNING:

Be prepared to collect escaping fluids.

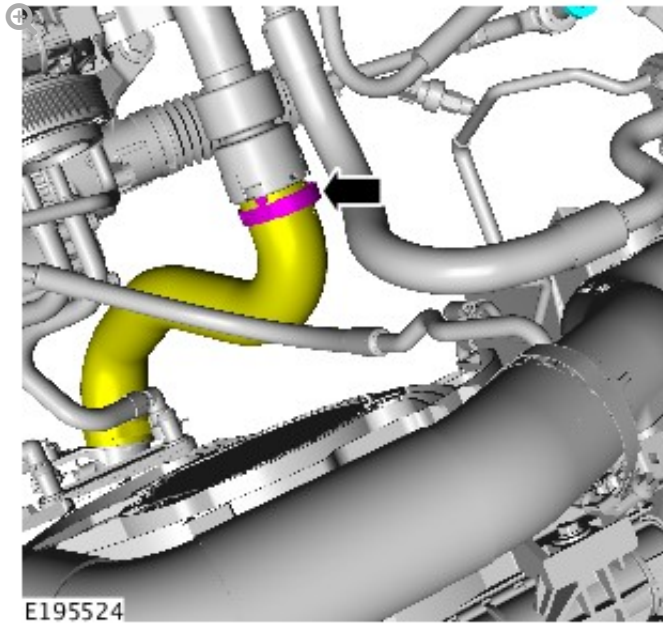


Release the transmission cooler pipes.

31.

WARNING:

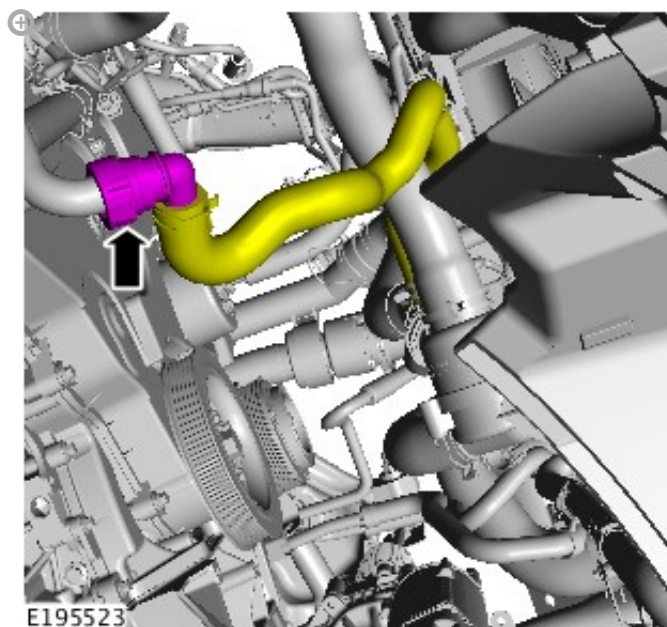
Be prepared to collect escaping fluids.



32.

CAUTION:

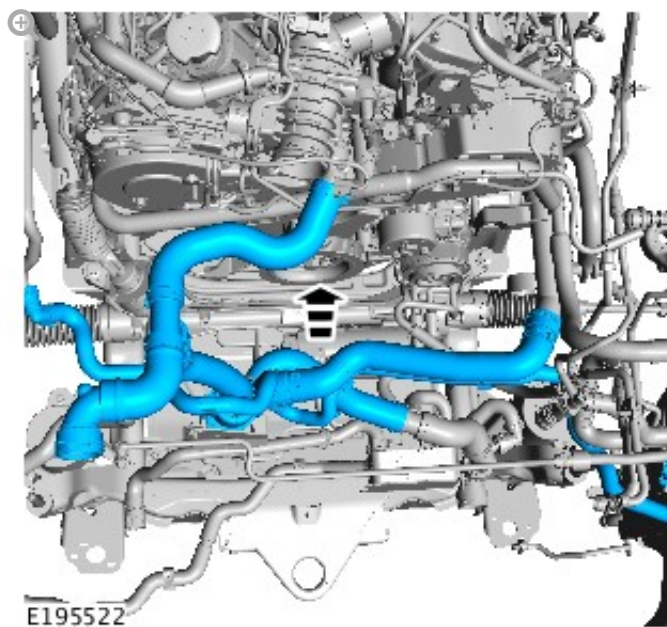
Be prepared to collect escaping coolant.



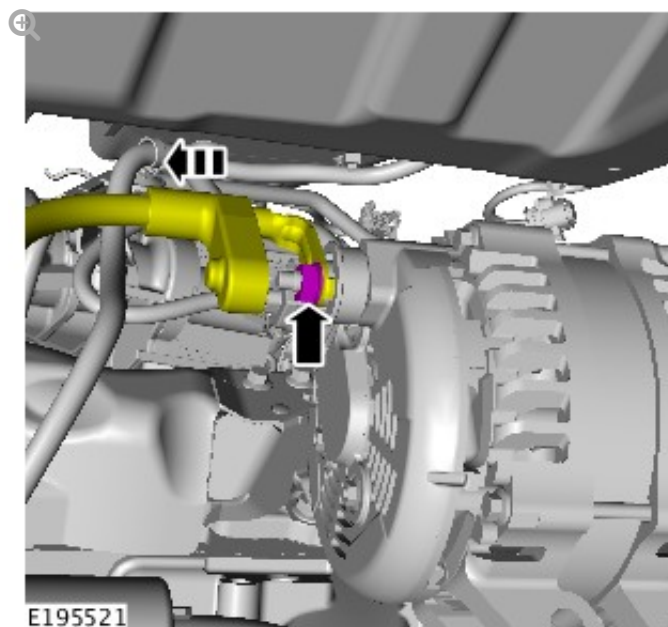
33.

CAUTION:

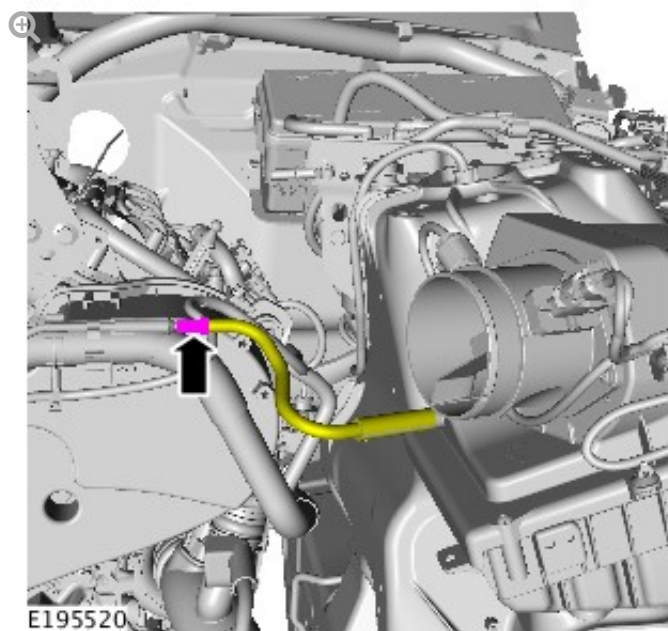
Be prepared to collect escaping coolant.



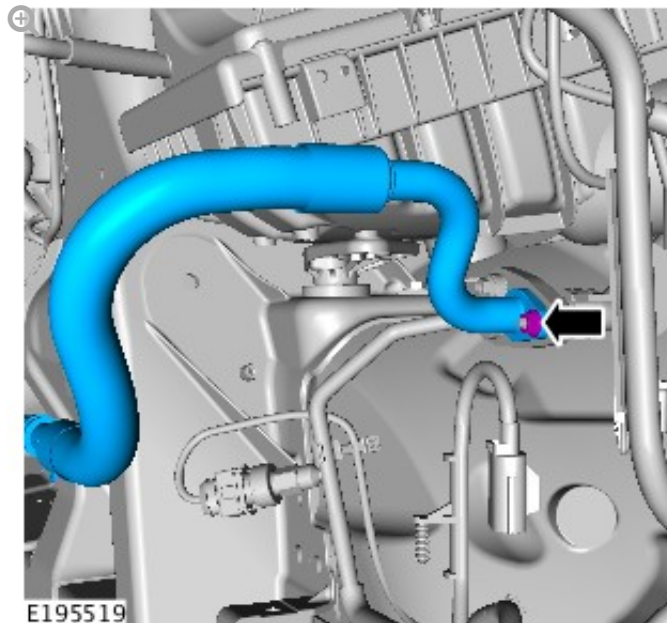
34.



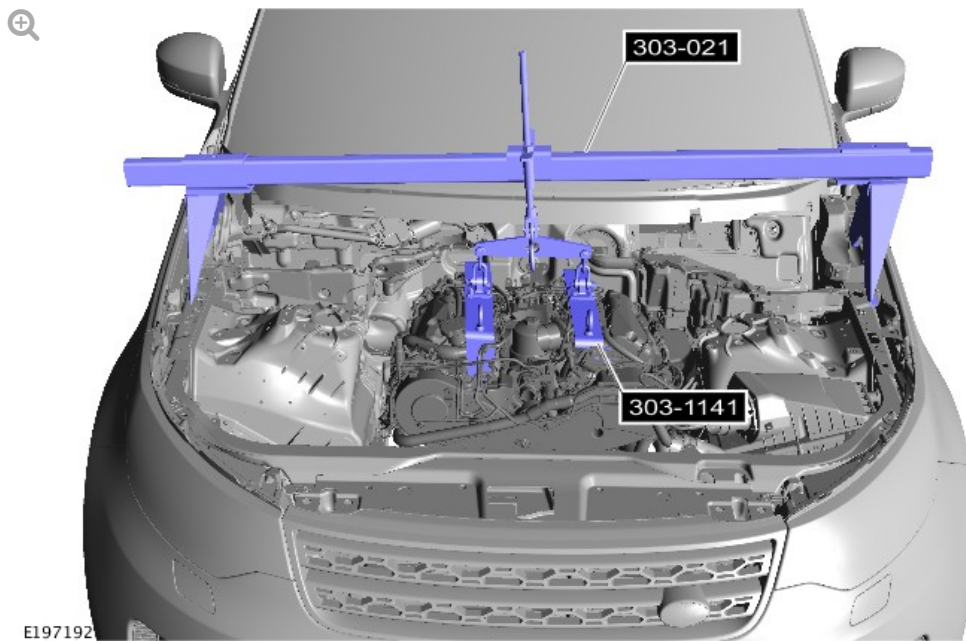
35.



36.



37.

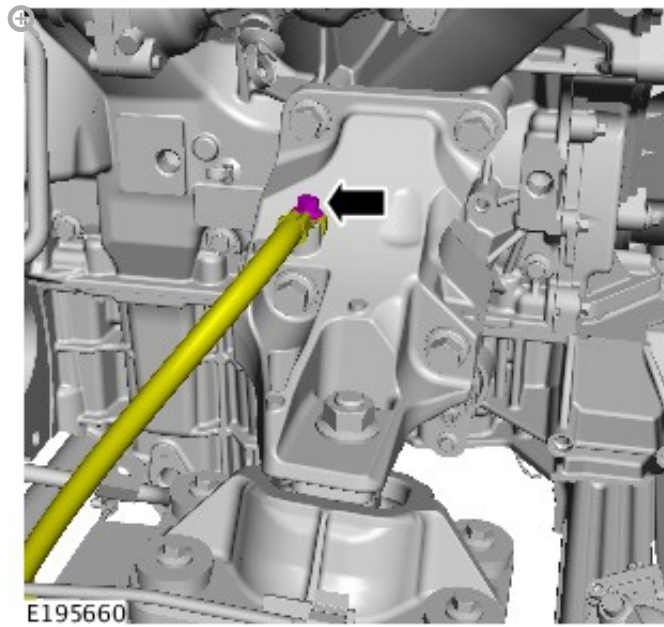


1. Install the special tools.

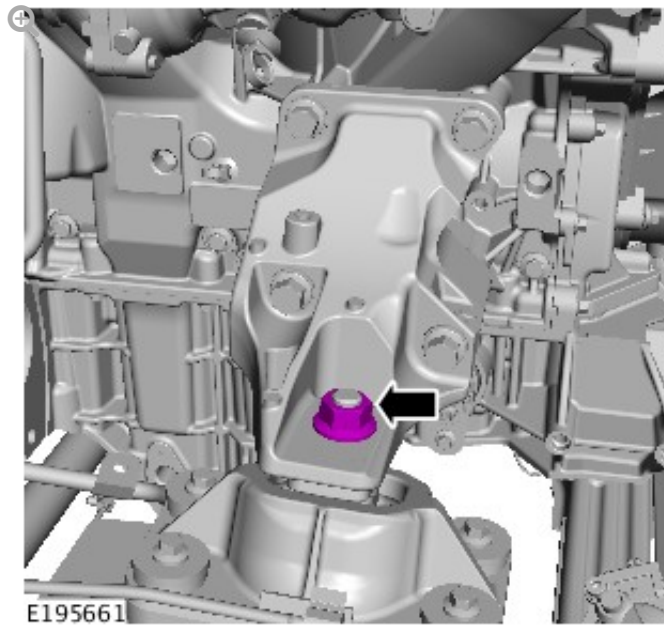
Special Tool(s): [303-021](#), [303-1141](#)

38. Remove the transmission and transfer gearbox from the vehicle.
Refer to: [Transmission - TDV6 3.0L Diesel](#) (307-01B Automatic Transmission/Transaxle - Vehicles With: 8HP70 8-Speed Automatic Transmission AWD, Removal).

39.



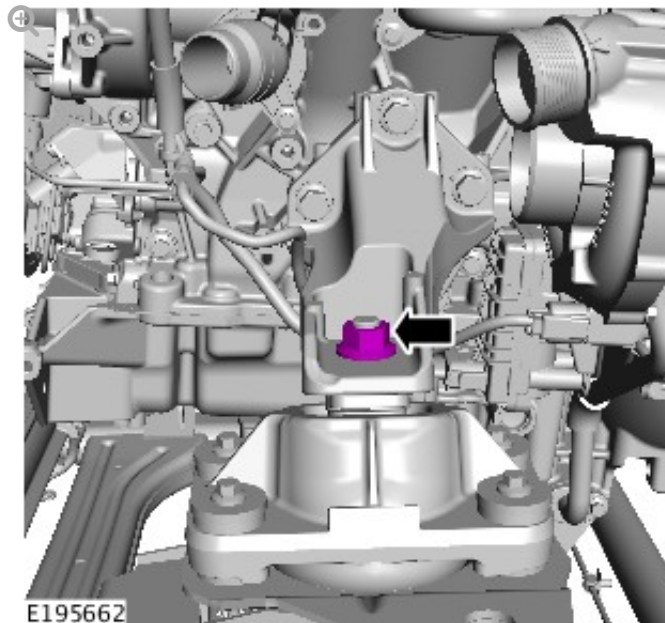
40.



Remove and discard the engine mount nut.

Renew Part: [Engine mount to engine mount bracket nut](#).

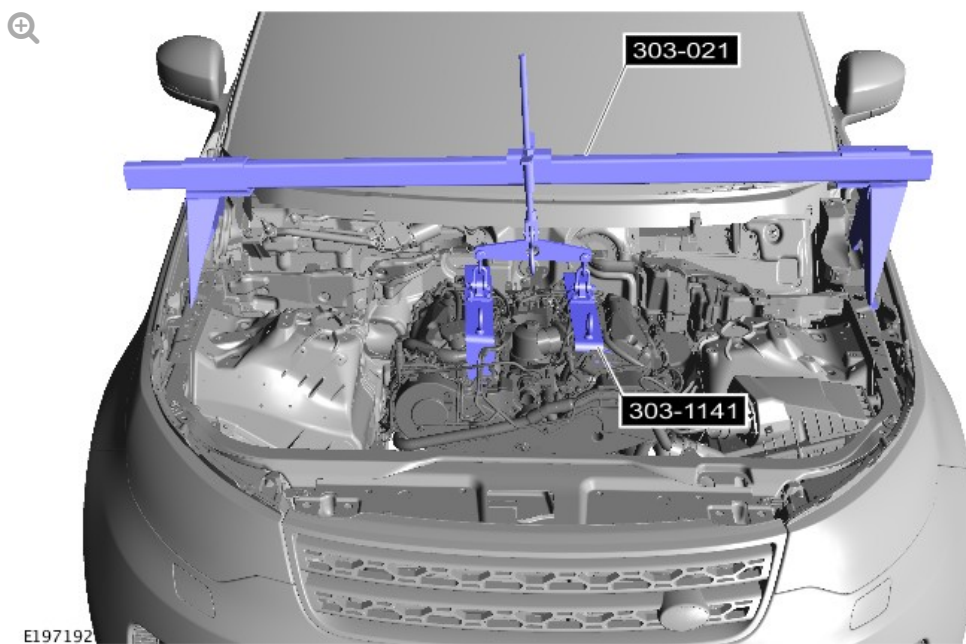
41.



Remove and discard the engine mount nut.

Renew Part: [Engine mount to engine mount bracket nut](#).

42.



Remove the special tool.

Special Tool(s): [303-021](#)

43.

WARNING:

This step requires the aid of another technician.

CAUTION:

Be prepared to collect escaping fluids.



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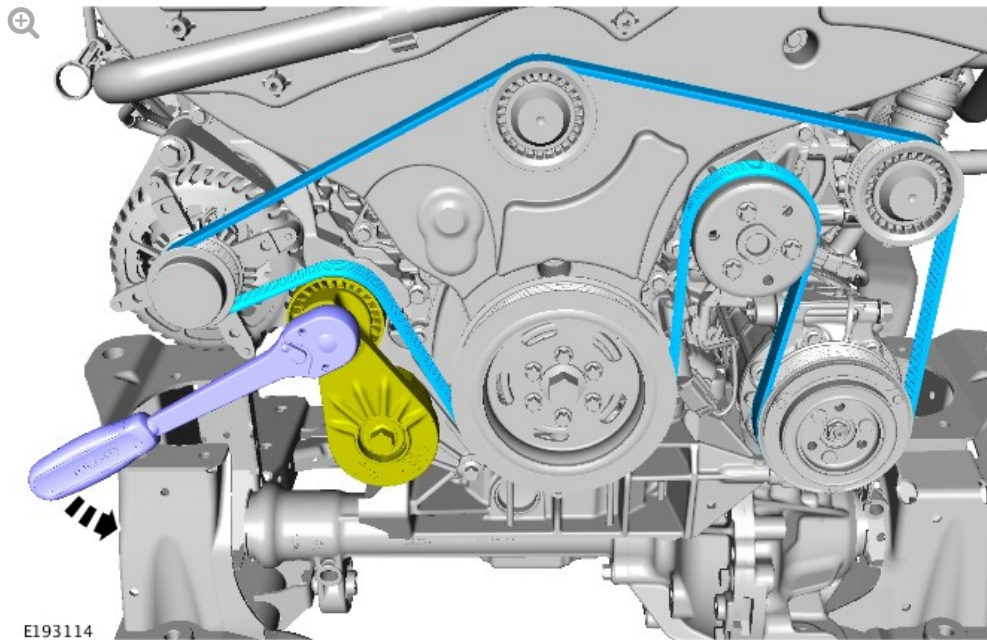
Carefully and progressively raise and remove the engine with the use of the engine hoist.

Special Tool(s): [303-1141](#)

General Equipment: [Engine hoist \(1 tonne minimum capacity\)](#)

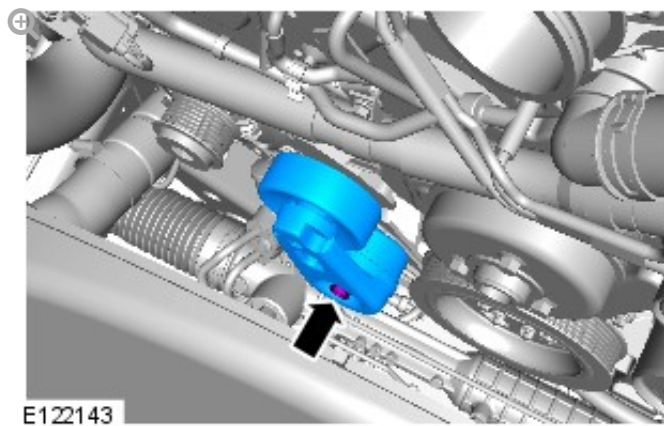
44. Install the engine on a suitable stand.

45.



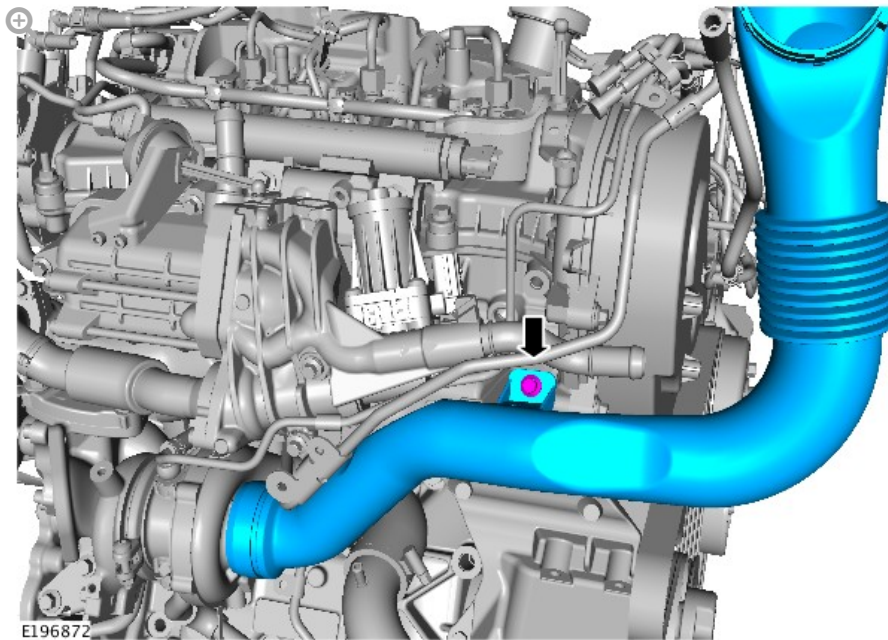
Remove the accessory drive belt.

46.



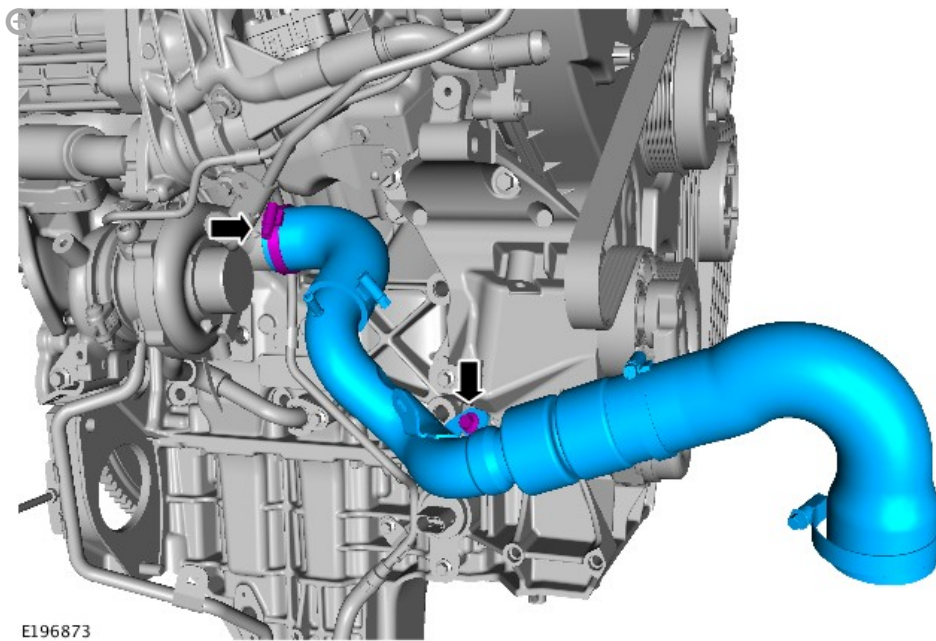
Remove the accessory drive belt tensioner.

47.



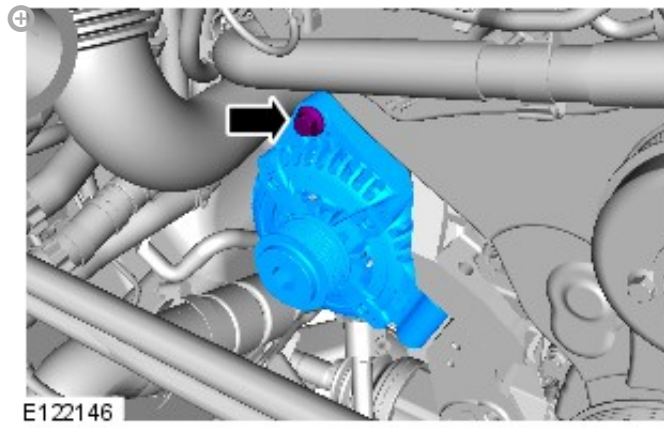
- Remove the retaining nut from the air intake hose assembly.
- Remove the air intake hose assembly.

48.



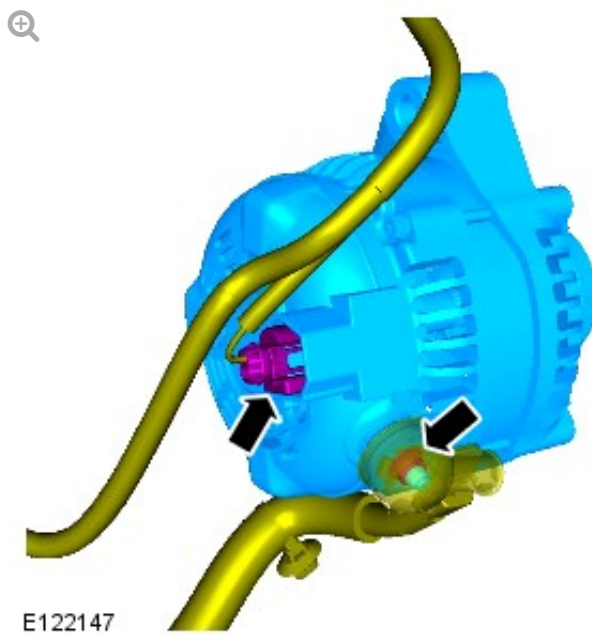
- Release the clip from the air intake hose.
- Remove the retaining nut from the air intake hose assembly.
- Remove the air intake hose assembly.

49.



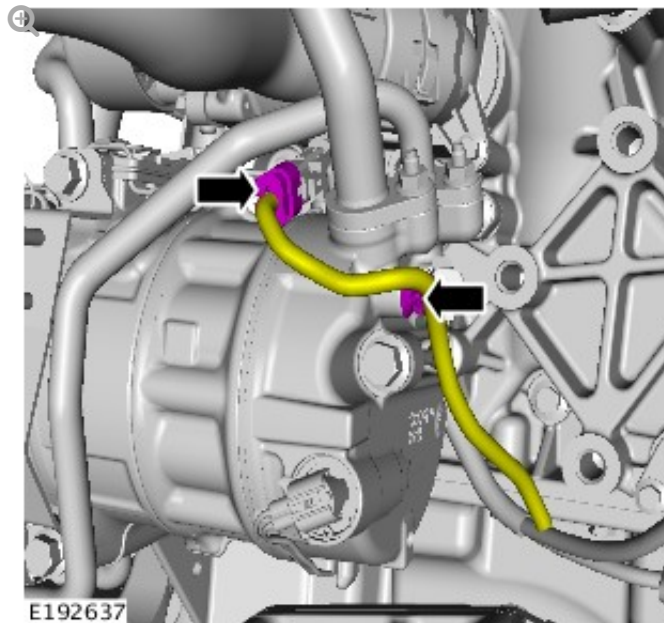
Remove the generator.

50.



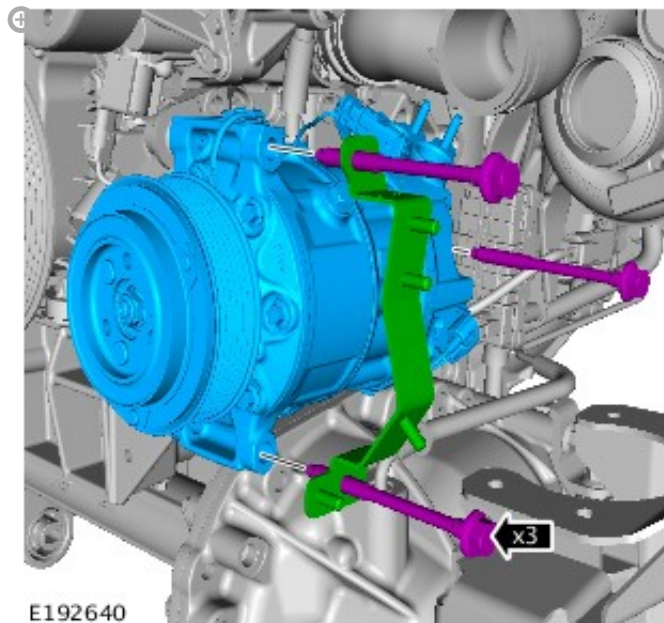
Disconnect the two generator harness connectors.

51.



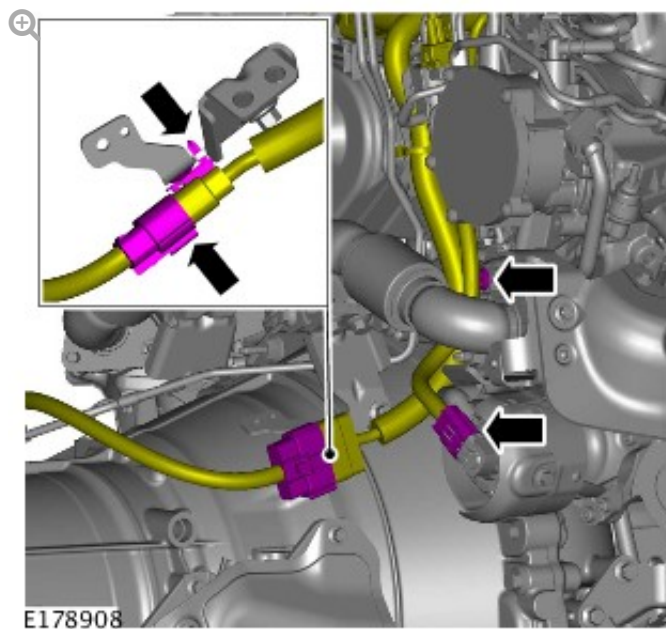
Disconnect the Air Conditioning (A/C) compressor wiring harness.

52.

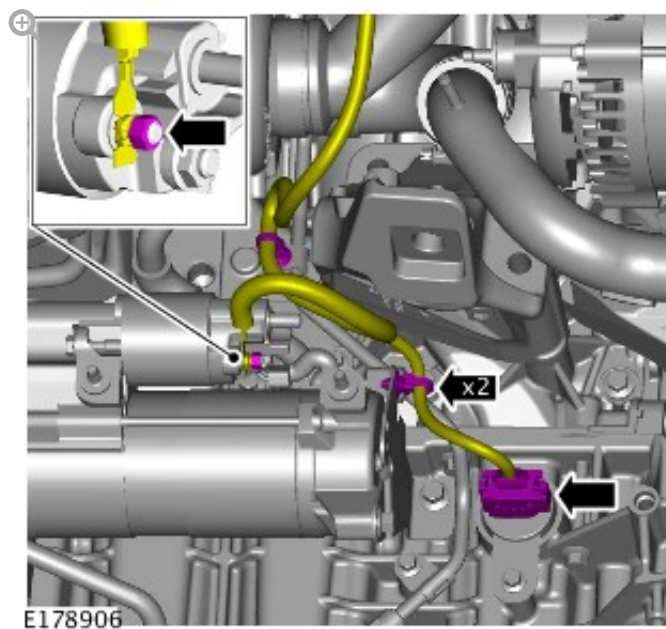


Remove the A/C compressor.

53.

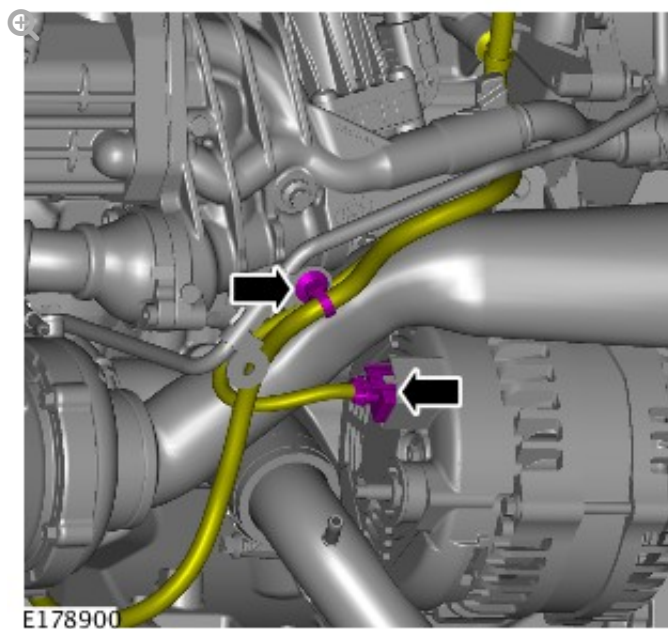


54.

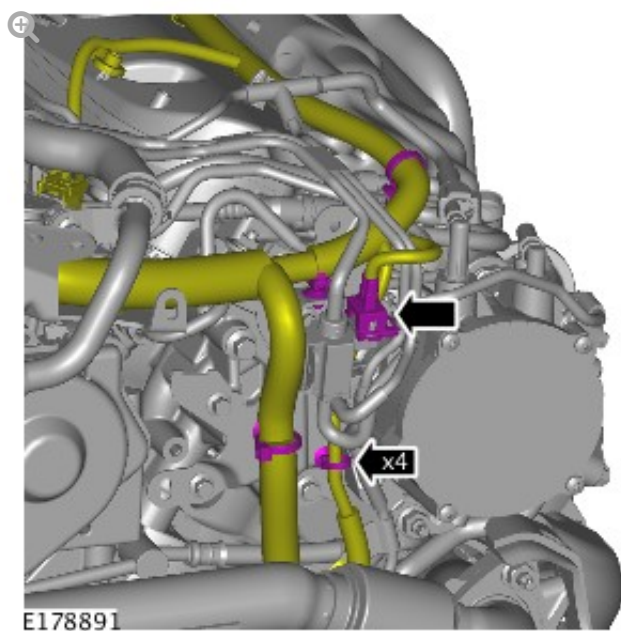


Torque: 7 Nm

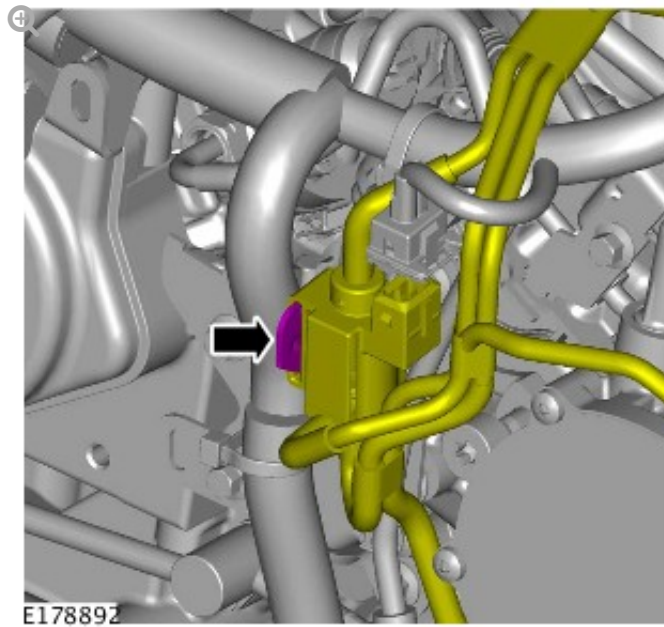
55.



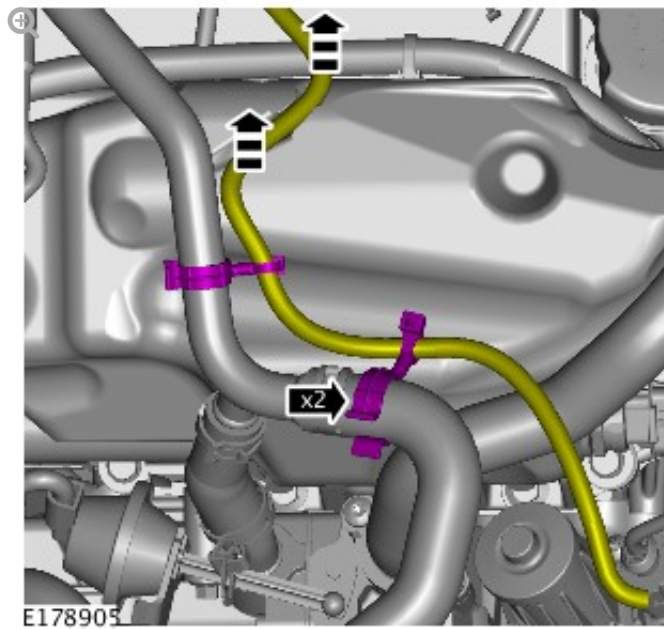
56.



57.



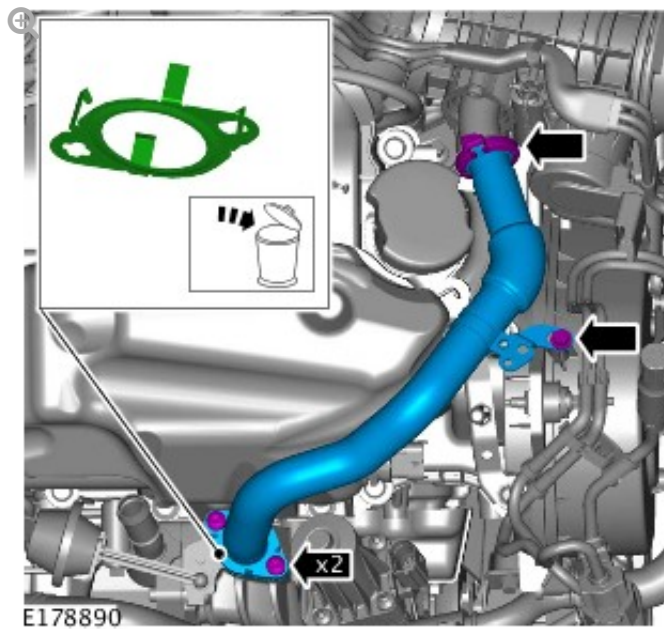
58.



59.

NOTE:

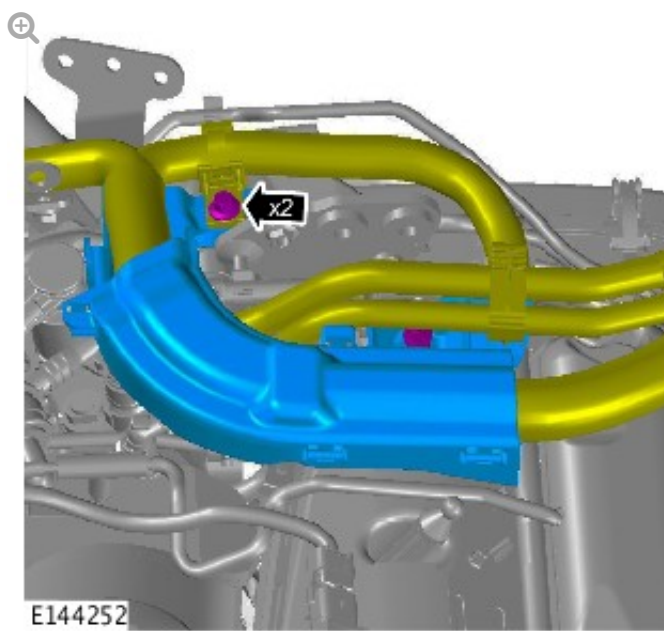
Remove and discard the gasket.



Remove the pipe.

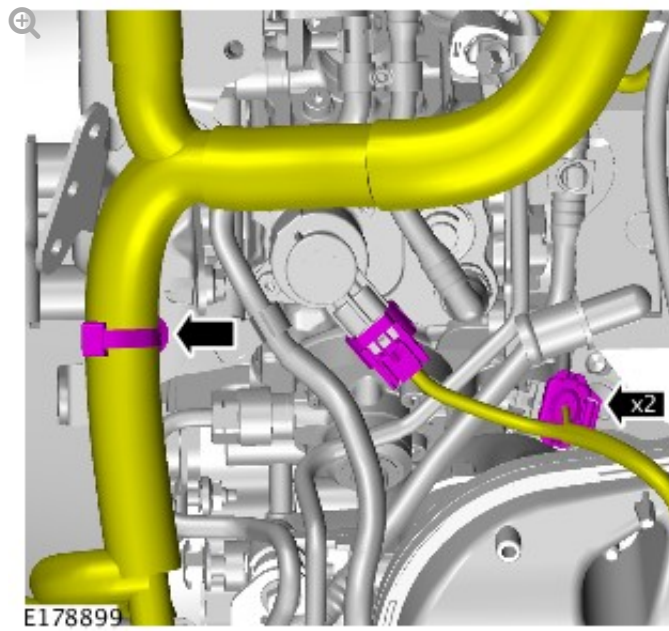
Renew Part: *EGR inlet pipe to EGR valve gasket.*

60.

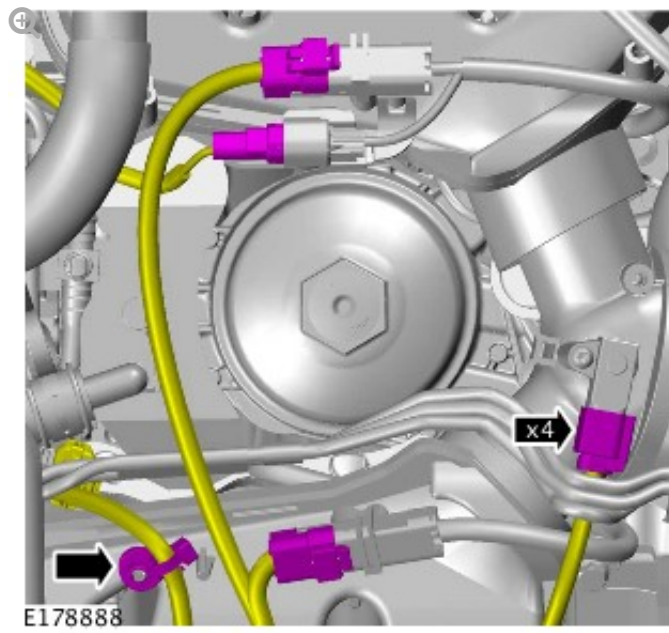


Torque: 10 Nm

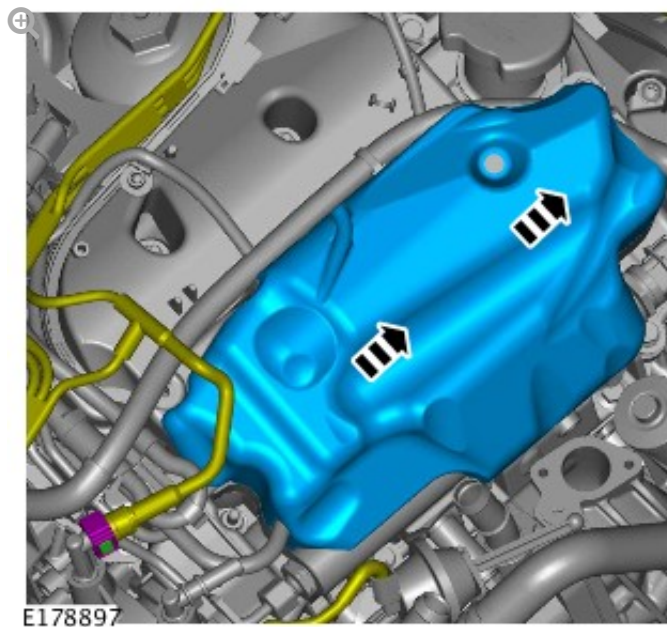
61.



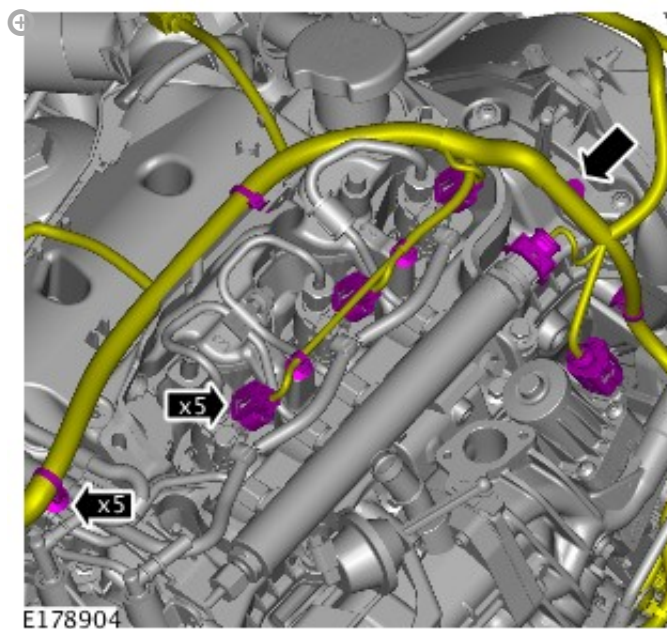
62.



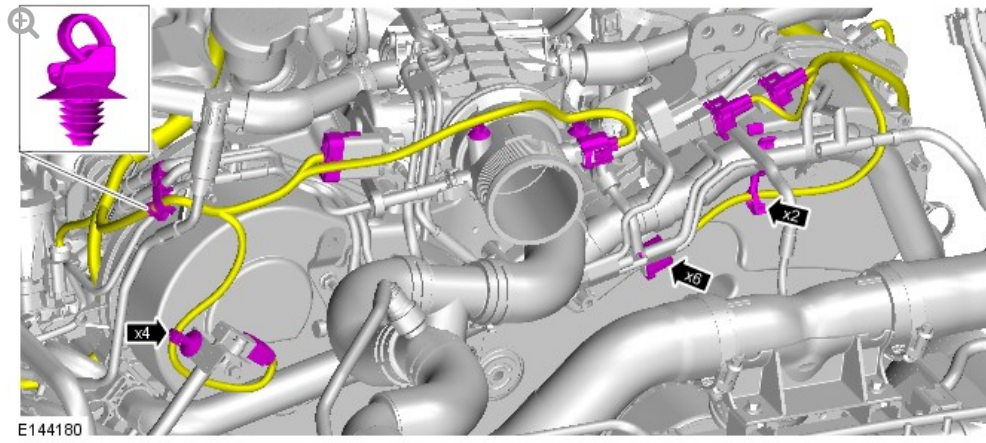
63.



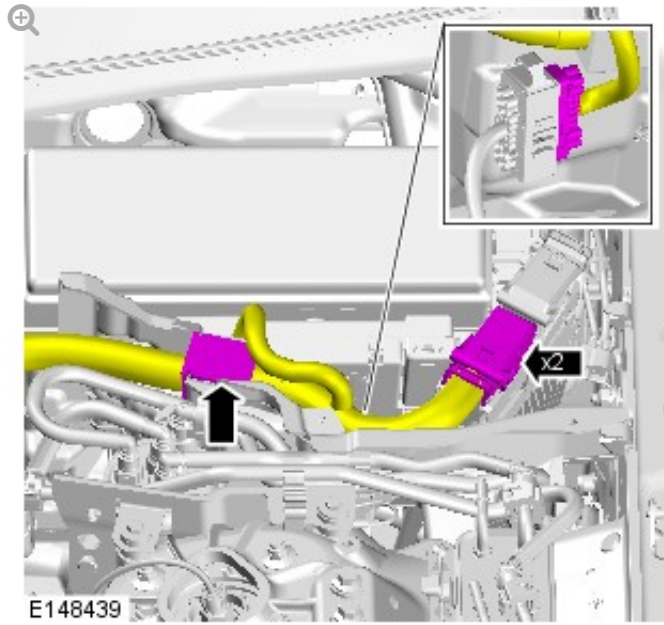
64.



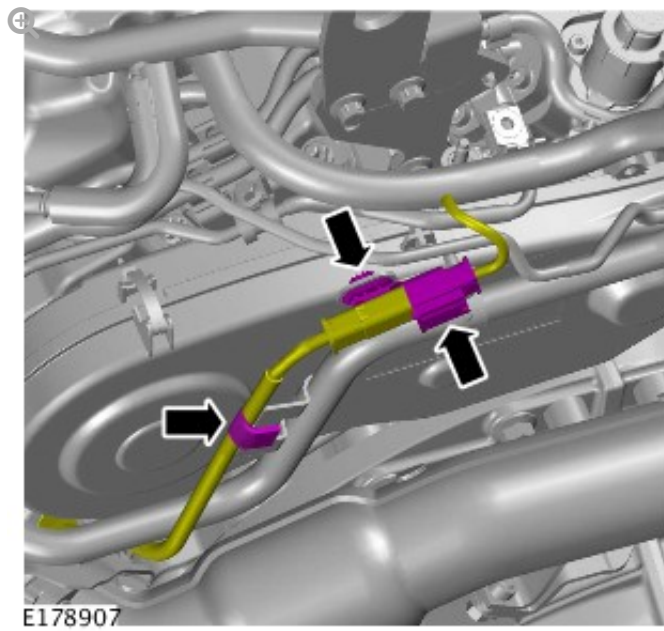
65.



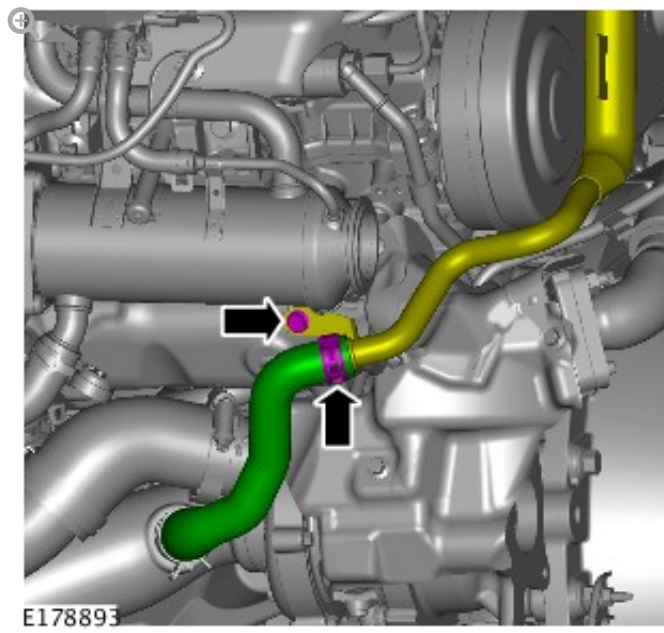
66.



67.

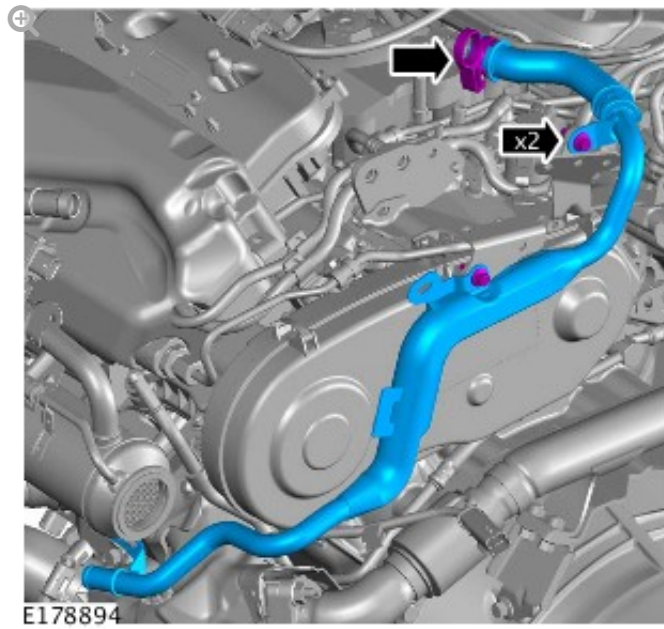


68.



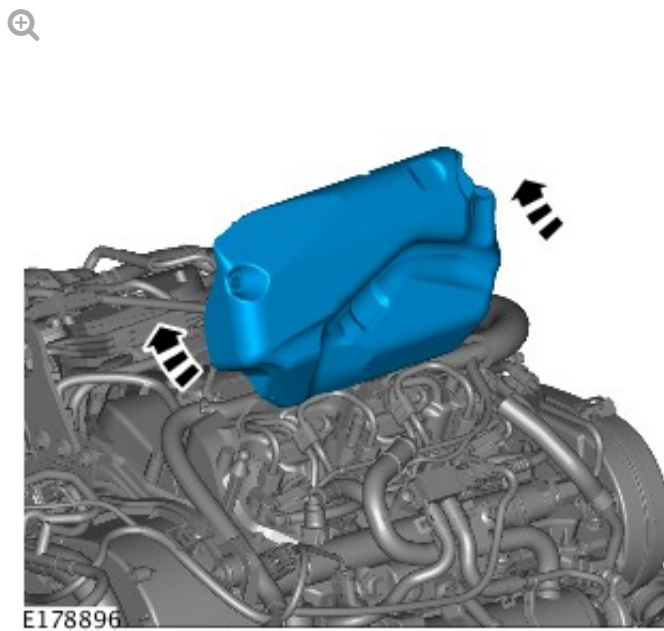
Torque: 10 Nm

69.

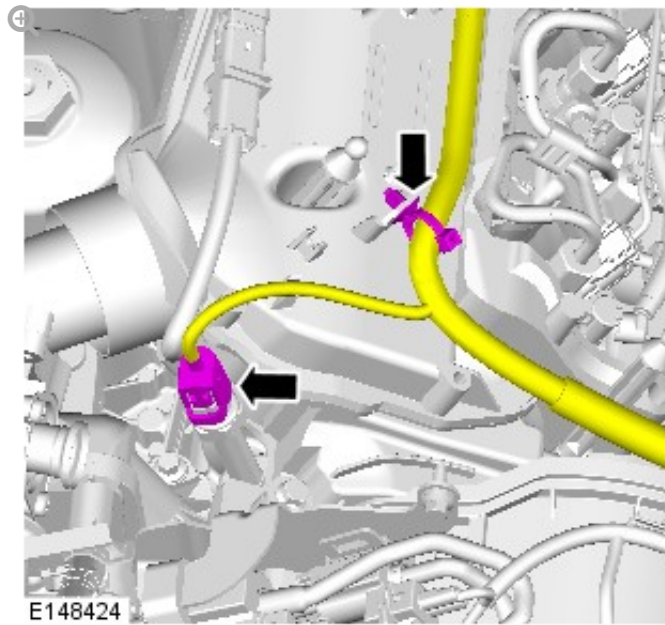


Torque: 10 Nm

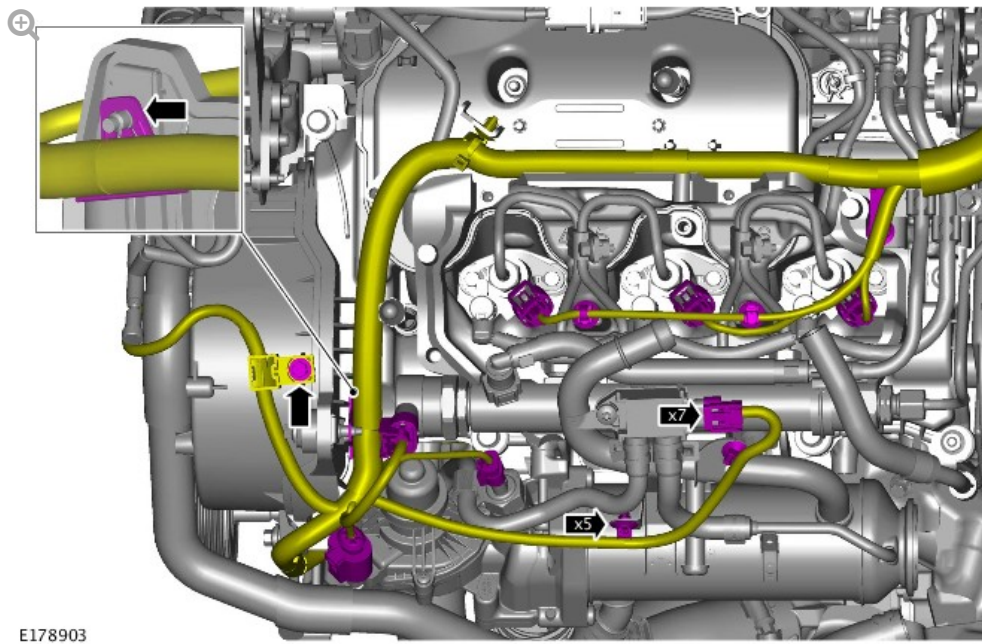
70.



71.

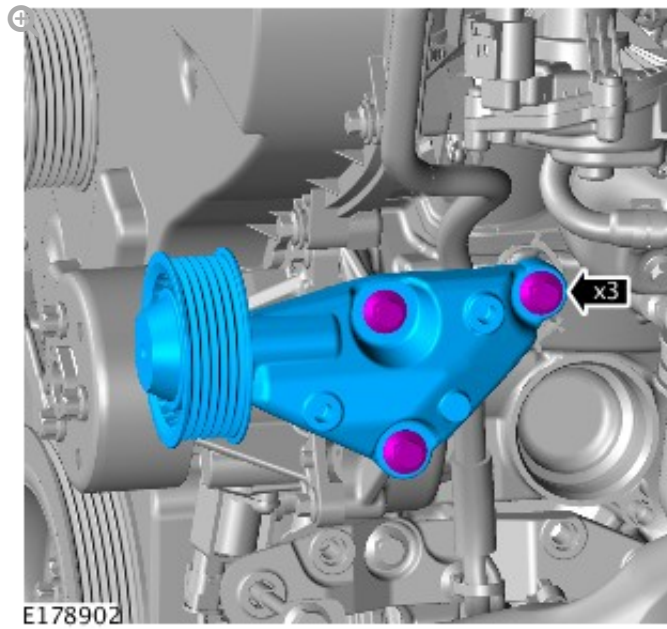


72.



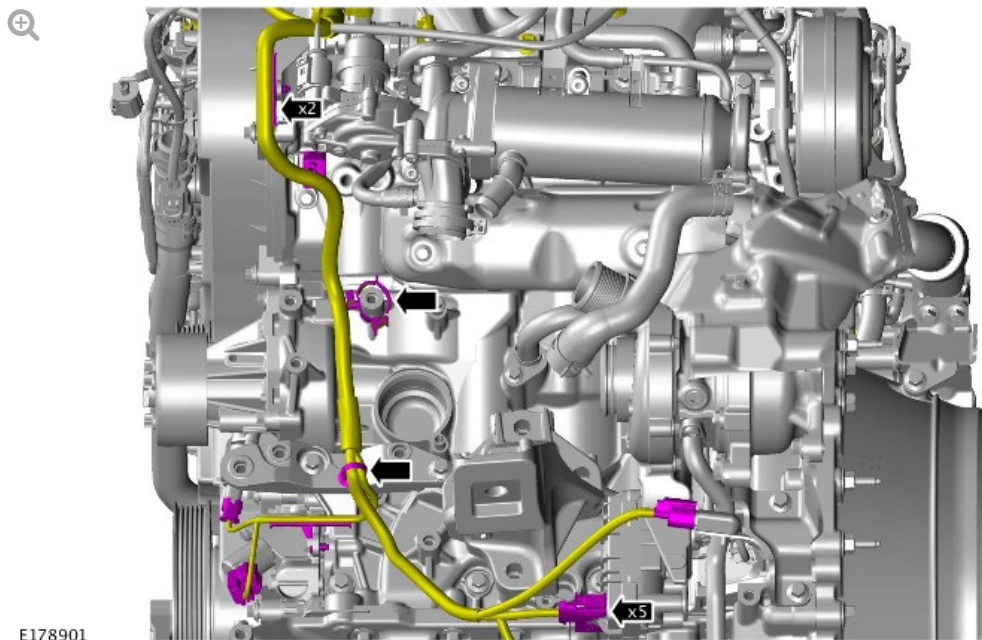
Torque: 9 Nm

73.

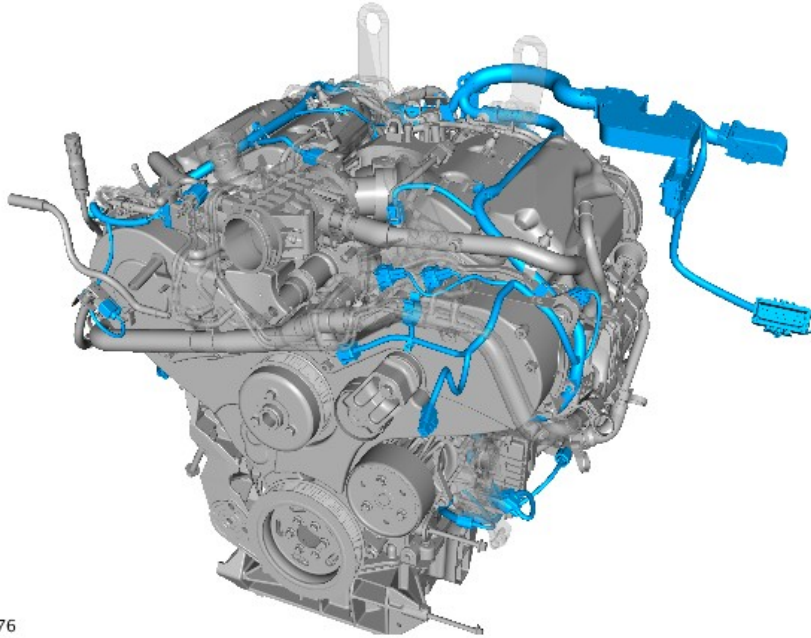


Torque: 23 Nm

74.



75.



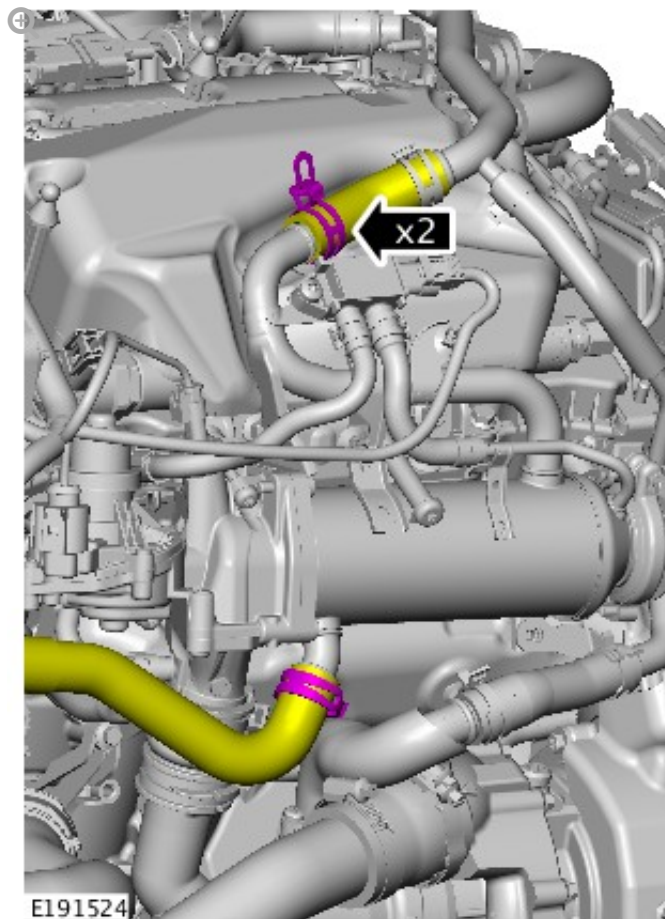
E198076

Remove the engine wiring harness.

76.

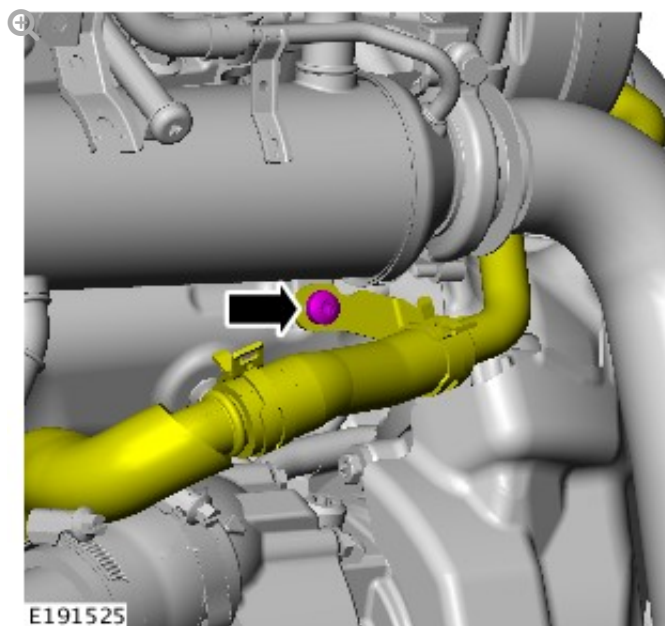
CAUTION:

Be prepared to collect escaping coolant.



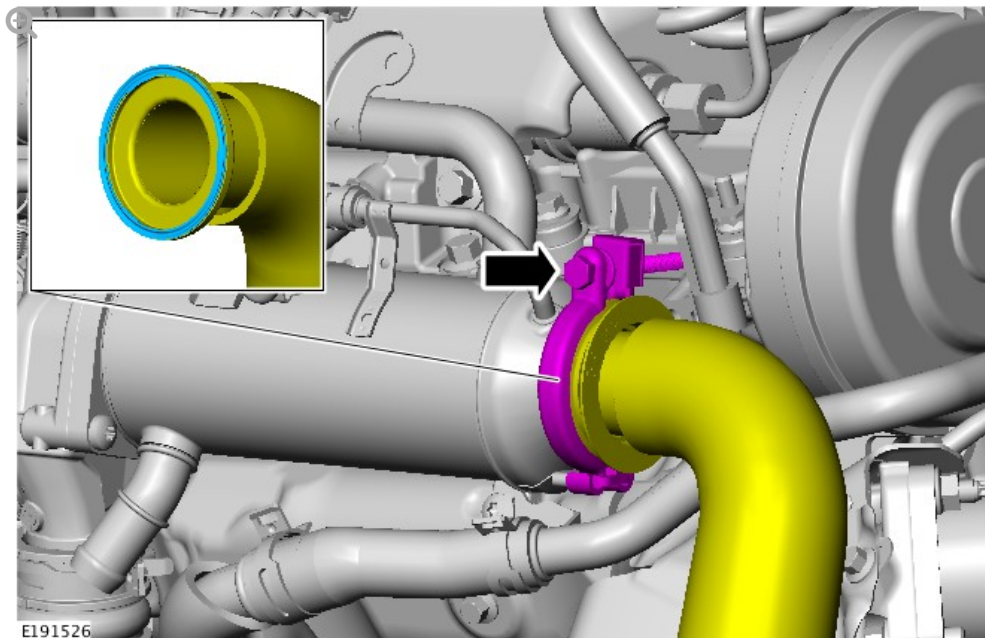
- Release the two retaining clips.
- Remove the two Exhaust Gas Recirculation (EGR) hoses.

77.



Remove the bolt.

78.



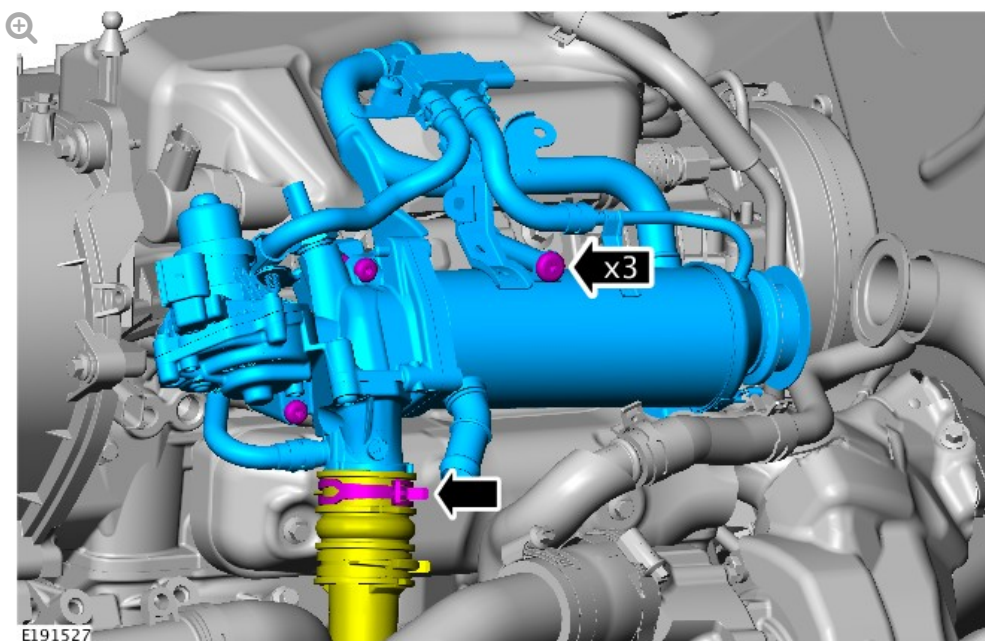
Discard the gasket.

Renew Part: *Exhaust gas recirculation pipe gasket.*

79.

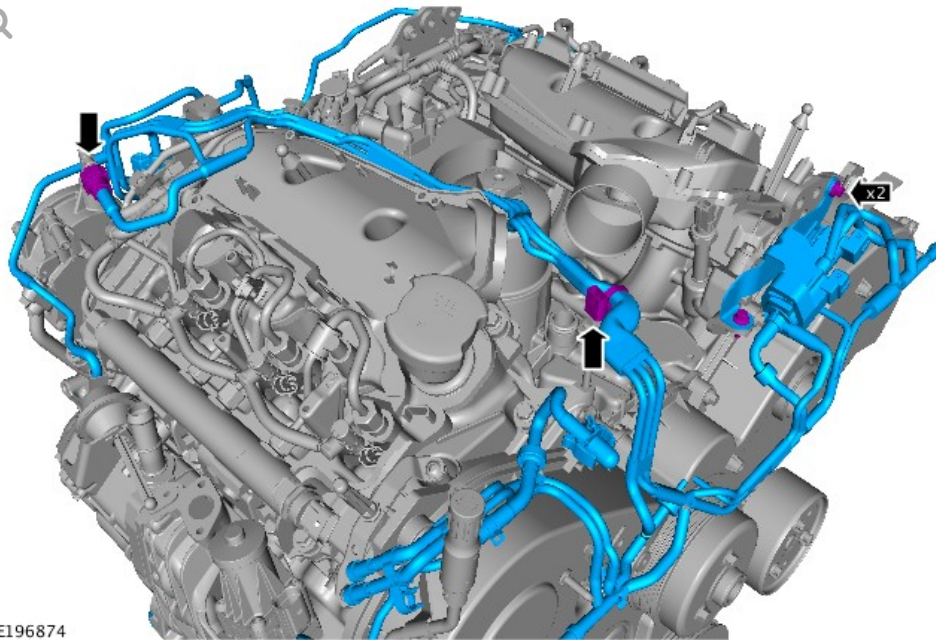
CAUTION:

Be prepared to collect escaping coolant.



Remove the EGR valve.

80.

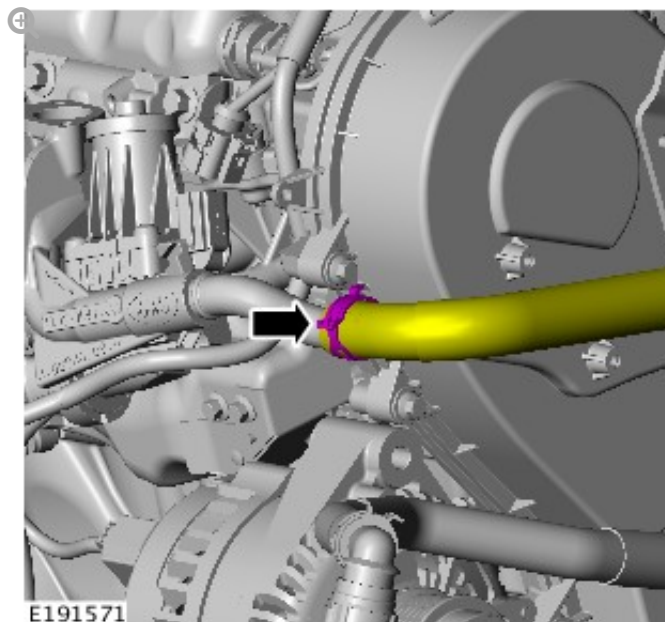


- Disconnect the vacuum hose clip at the brake vacuum pump.
- Release the retaining clip.
- Remove the two retaining nuts.
- Remove the vacuum hose harness.

81.

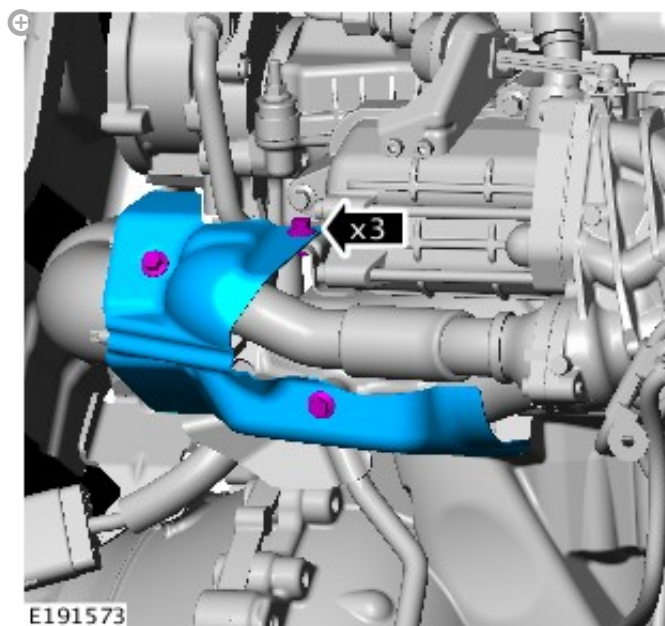
CAUTION:

Be prepared to collect escaping coolant.



Remove the clip.

82.

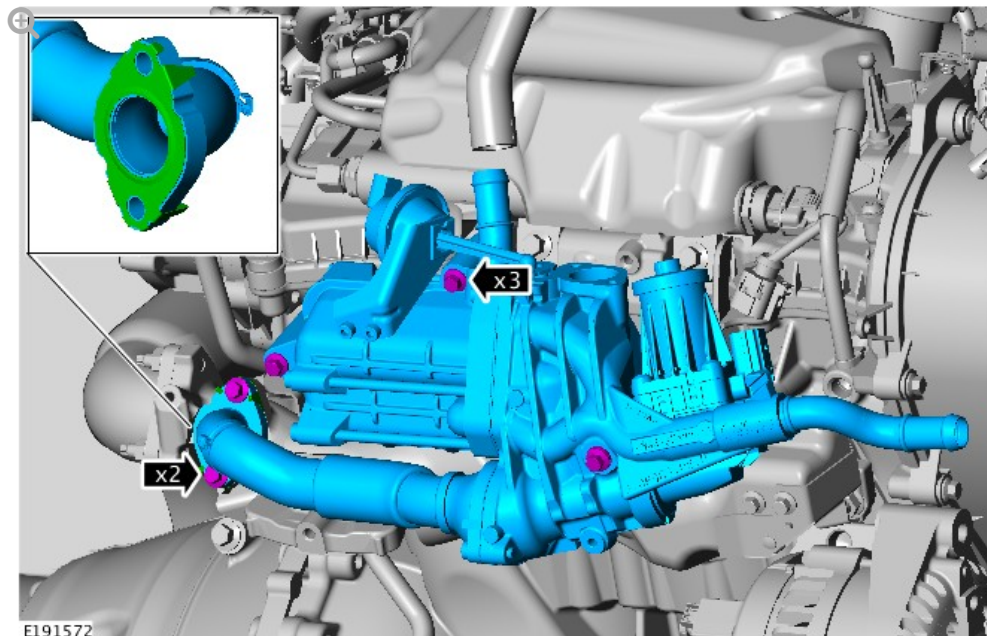


Remove the EGR cover.

83.

CAUTION:

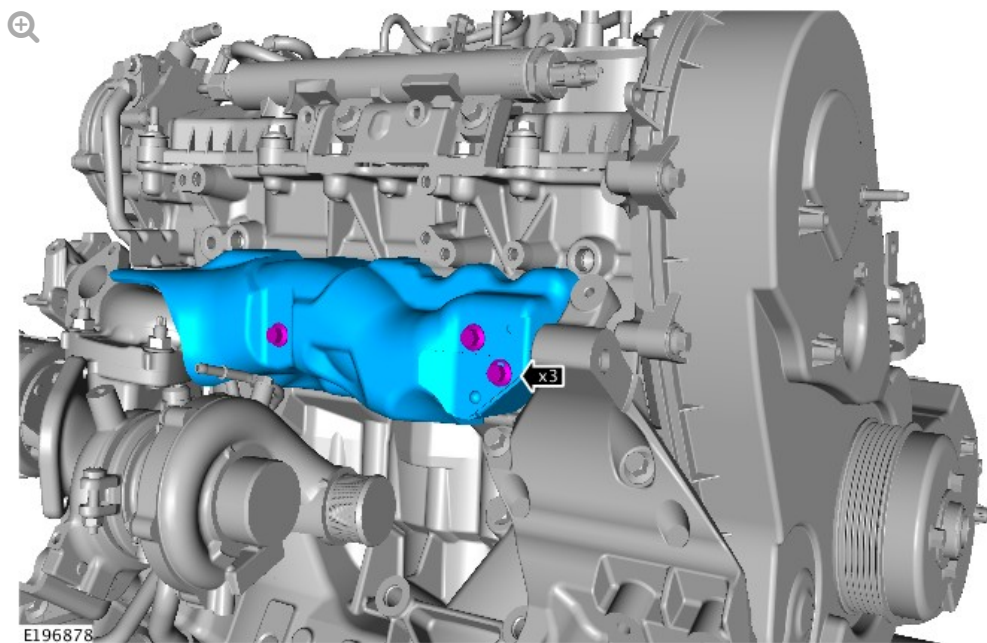
Be prepared to collect escaping coolant.



- Remove the five retaining bolts.
- Remove the EGR valve.
- Remove and discard the gasket.

Renew Part: [Exhaust manifold to EGR valve gasket](#).

84.

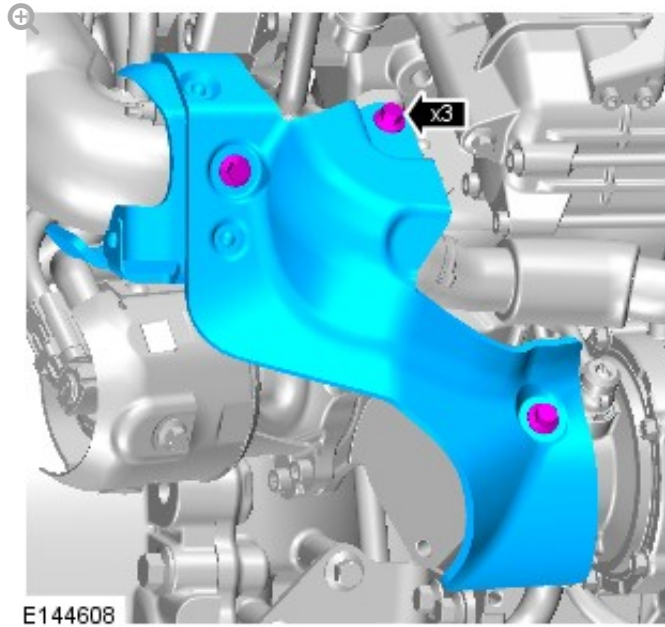


- Remove the three retaining bolts.
- Remove the exhaust manifold cover.

85.

NOTE:

If fitted;



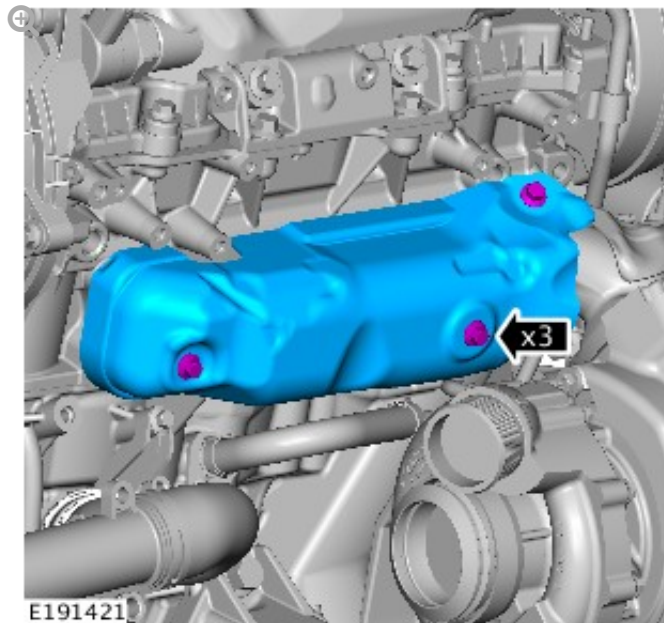
Remove the turbocharger cover.

86.



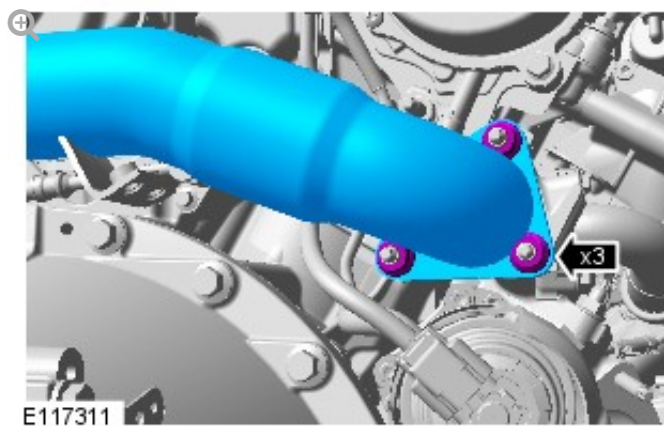
Remove the turbocharger cover.

87.



Remove the exhaust manifold cover.

88.



■ **NOTE:**

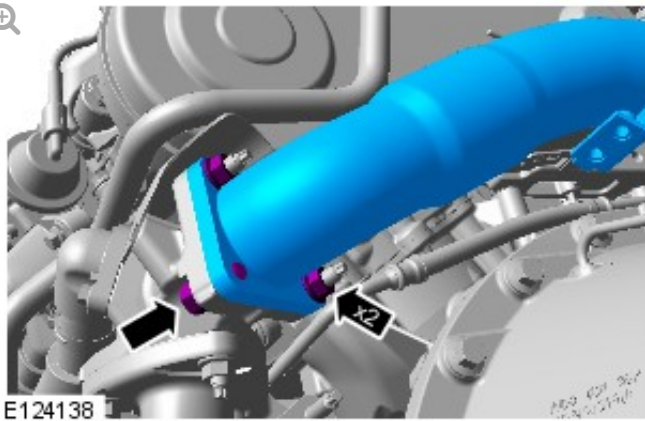
Remove and discard the gasket.

Remove and discard the nuts.

Renew Part: *Exhaust manifold cross-over pipe nuts.*

Renew Part: *Exhaust manifold cross-over pipe gaskets.*

89.



■ **NOTE:**

Remove and discard the gasket.

Remove and discard the nuts and bolt.

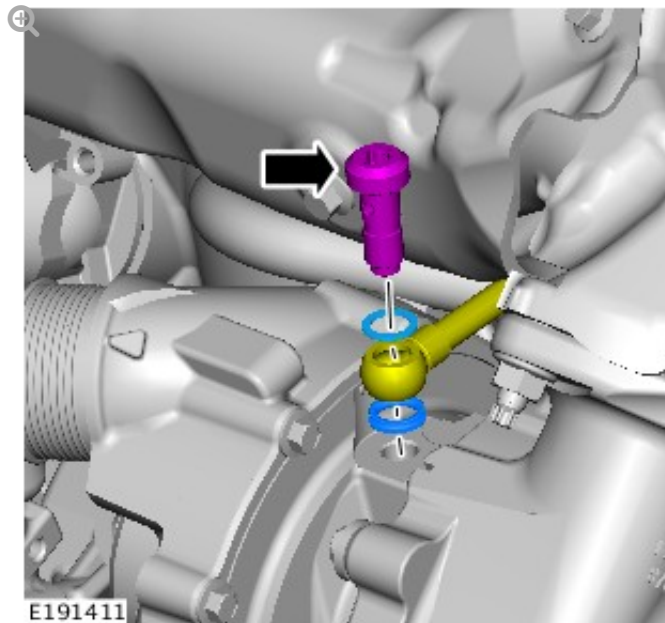
Renew Part: [Exhaust manifold cross-over pipe nuts and bolts](#).

- Remove the exhaust crossover pipe.

90.

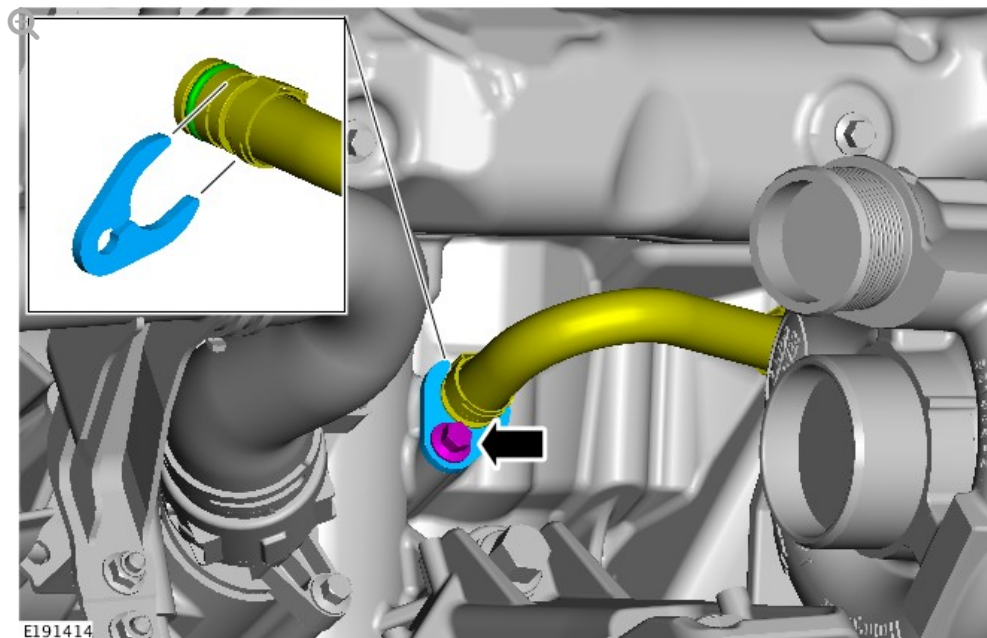
WARNING:

Be prepared to collect escaping oil.



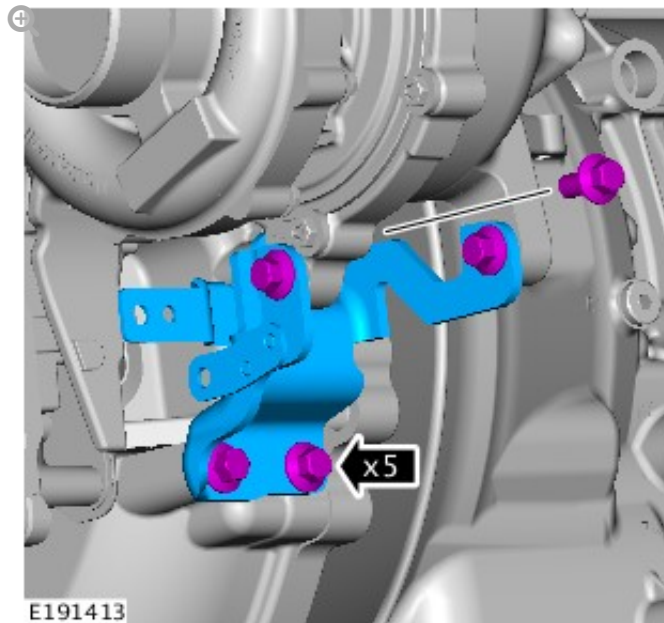
- Remove and discard the bolt.
Renew Part: [Turbocharger oil feed pipe banjo bolt.](#)
- Remove and discard the seals.
Renew Part: [Turbocharger oil feed pipe banjo bolt washers.](#)

91.



Discard the O-ring seal.
Renew Part: [Turbocharger coolant pipe O-ring seal.](#)

92.

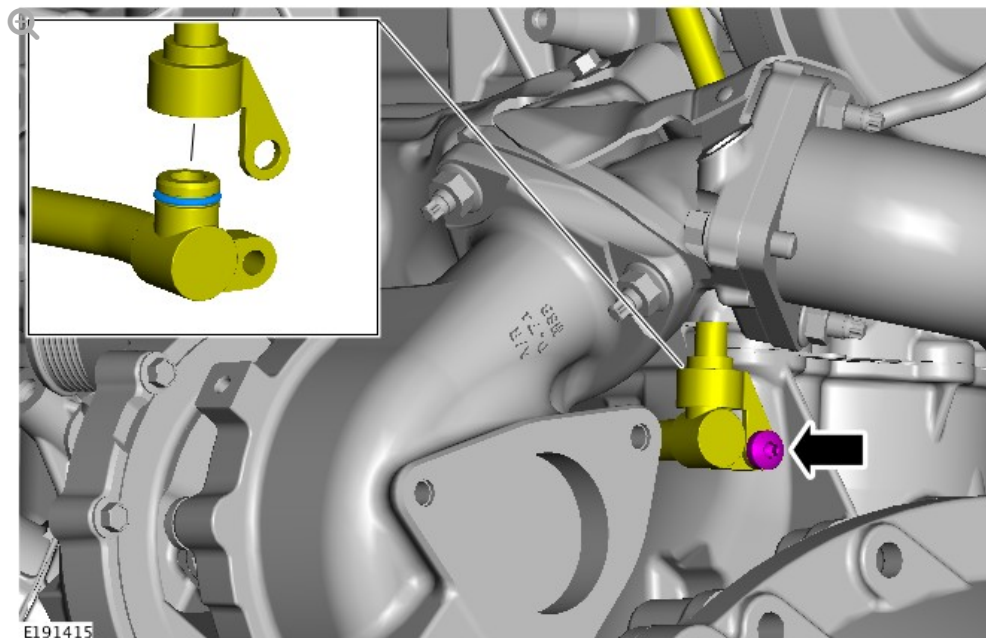


Remove the turbocharger support bracket.

93.

CAUTION:

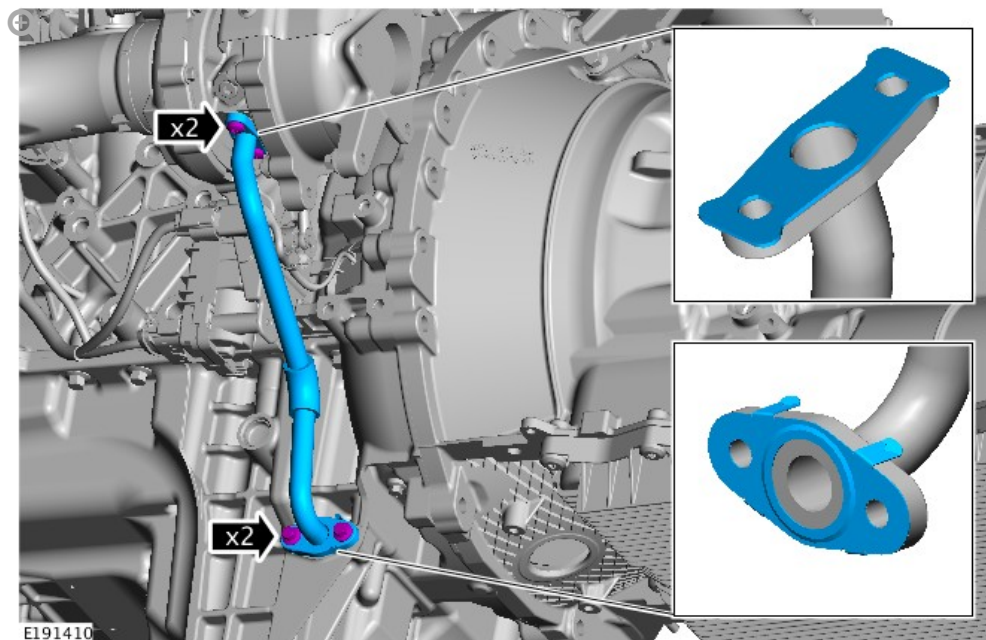
Be prepared to collect escaping coolant.



Discard the O-ring seal.

Renew Part: *Turbocharger coolant pipe O-ring seal.*

94.



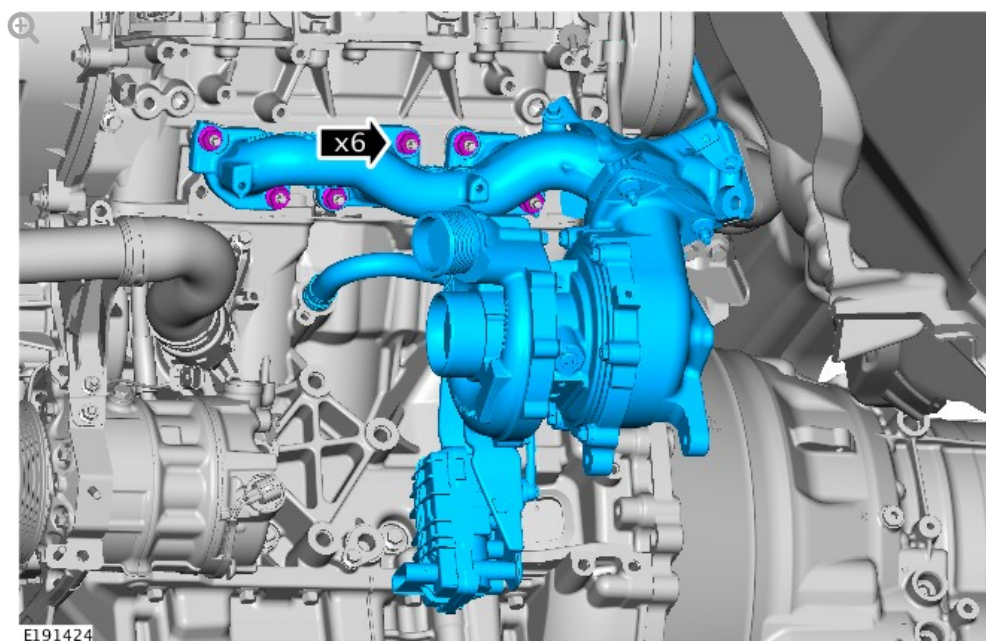
Remove and discard the gaskets.

Renew Part: *Turbocharger oil return pipe gasket.*

95.

NOTE:

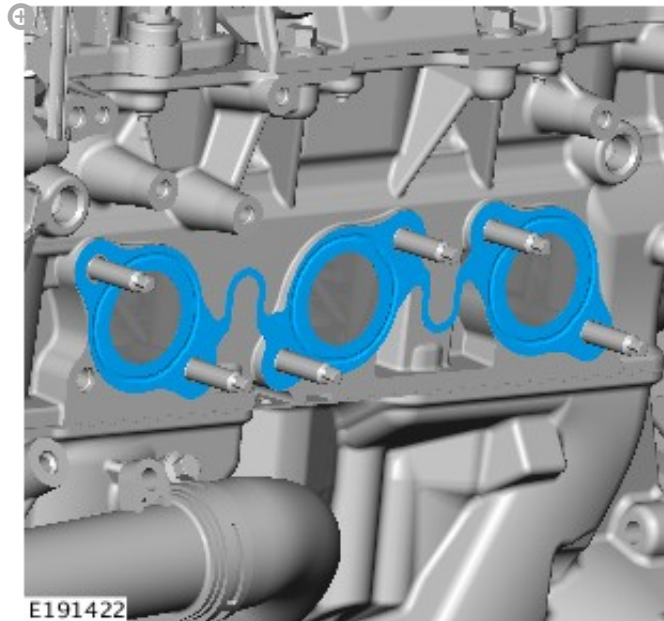
Discard the nuts.



Remove the exhaust manifold and turbocharger assembly.

Renew Part: *Exhaust manifold to cylinder head nuts.*

96.



Remove and discard the gasket.

Renew Part: *Exhaust manifold gasket.*

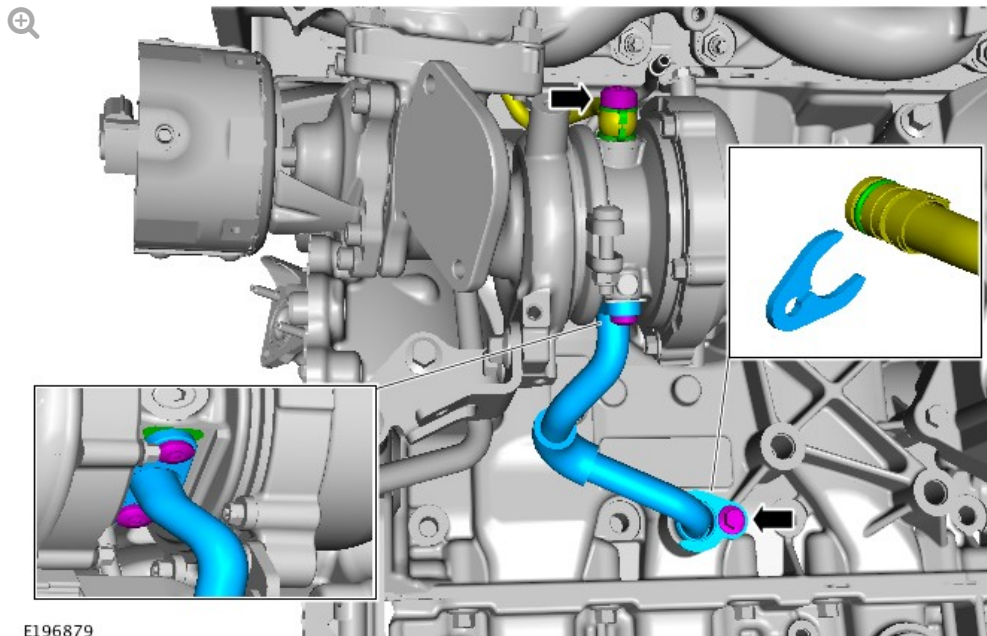
97.

CAUTION:

Be prepared to collect escaping oil.

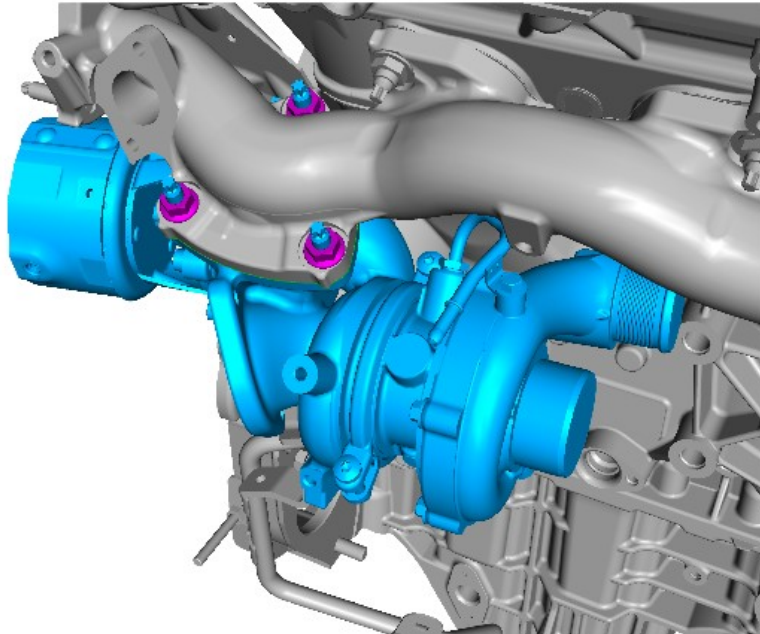
NOTE:

If fitted;



E196879

- Remove and discard the turbocharger banjo bolt.
Renew Part: [Turbocharger oil feed pipe banjo bolt](#).
- Discard the banjo bolt washers.
Renew Part: [Turbocharger oil feed pipe banjo bolt washers](#).
- Remove the three retaining bolts from the oil drain tube.
- Remove and discard the gasket.
Renew Part: [Turbocharger oil return pipe gasket](#).
- Remove and discard the O-ring seal.
Renew Part: [Oil return pipe O-ring seal](#).



E196880

■ **NOTES:**

- If fitted;
- Discard the gasket.

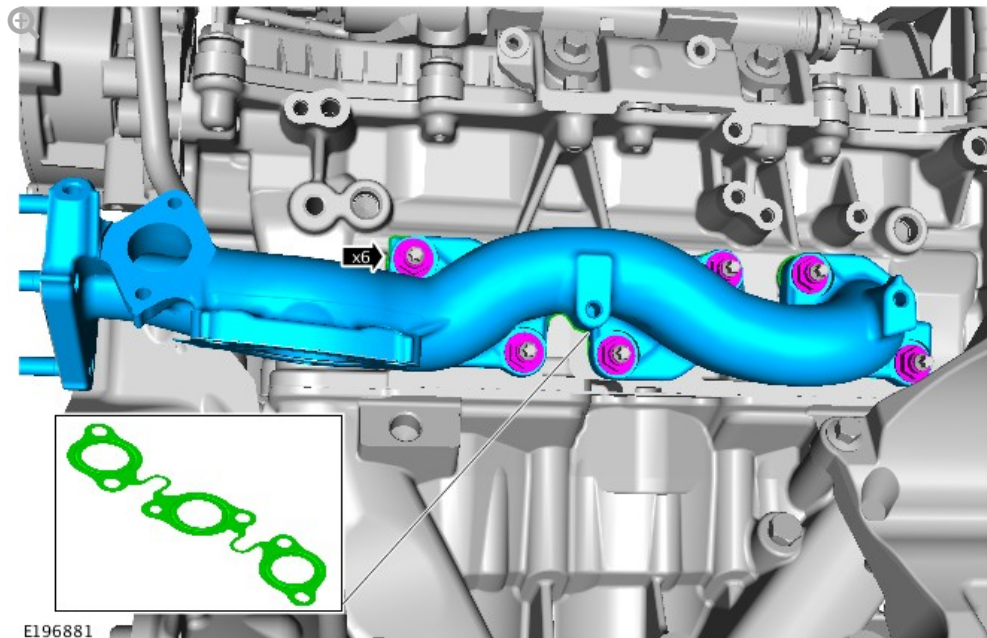
Remove and discard the three turbocharger nuts.

Renew Part: [Exhaust manifold to turbocharger nuts](#).

- Remove the turbocharger.

Renew Part: [Turbocharger to exhaust manifold gasket](#).

99.



■ **NOTES:**

- If fitted;
- Discard the nuts.

Remove the 6 exhaust manifold nuts.

Renew Part: [Exhaust manifold to cylinder head nuts](#).

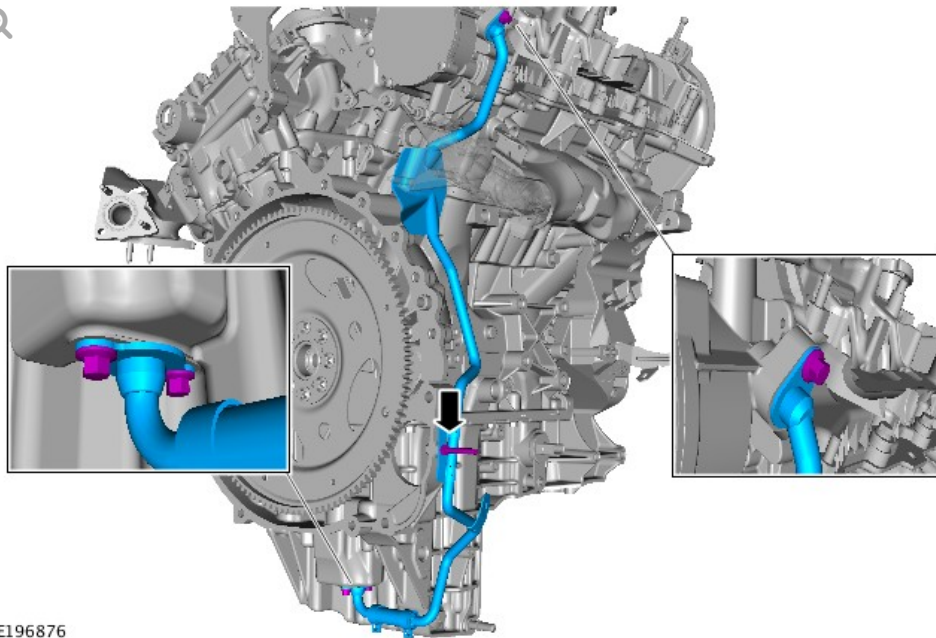
- Remove the exhaust manifold.
- Remove and discard the exhaust manifold gasket.

Renew Part: [Exhaust manifold gasket](#).

100.

CAUTION:

Be prepared to collect escaping oil.



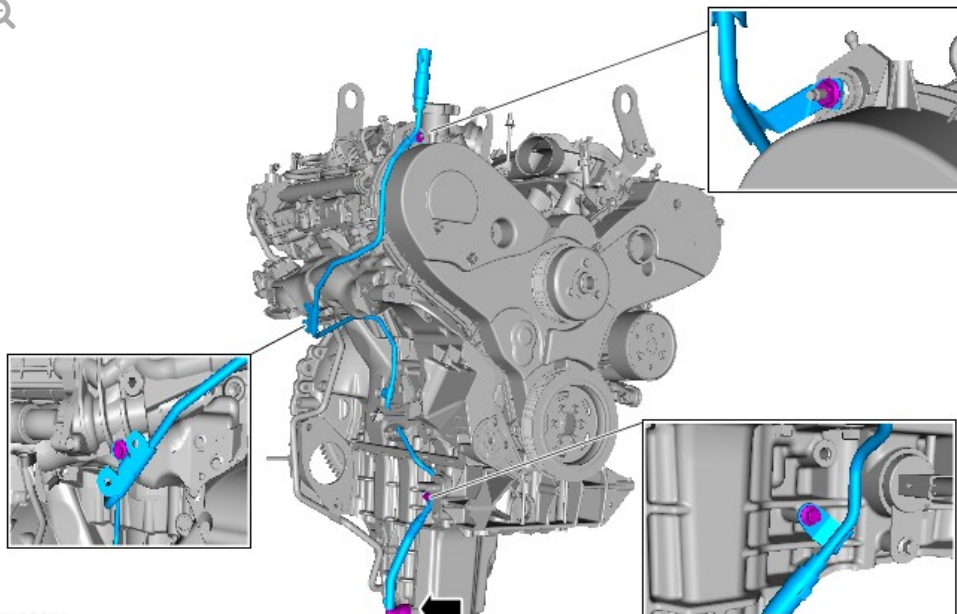
E196876

- Remove the 4 retaining bolts.
- Remove the oil scavange pipe.

101.

CAUTION:

Be prepared to collect escaping oil.

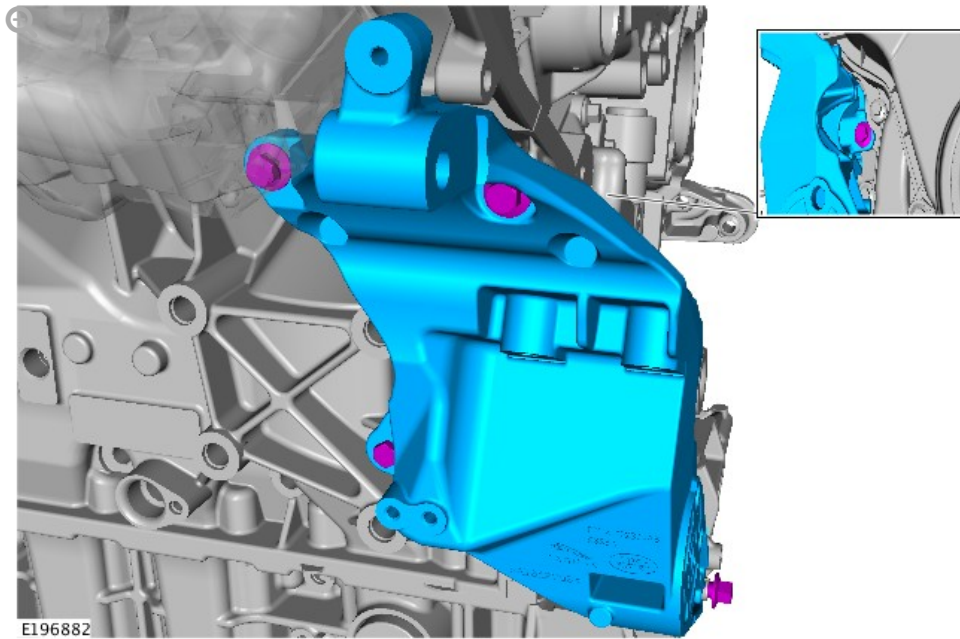


E196875

- Disconnect the oil extraction tube clip from the oil pan.

- Remove the two retaining bolts.
- Remove the retaining nut.
- Remove the oil extraction tube.

102.



- Remove the five retaining bolts.
- Remove the accessory drive belt tensioner bracket.

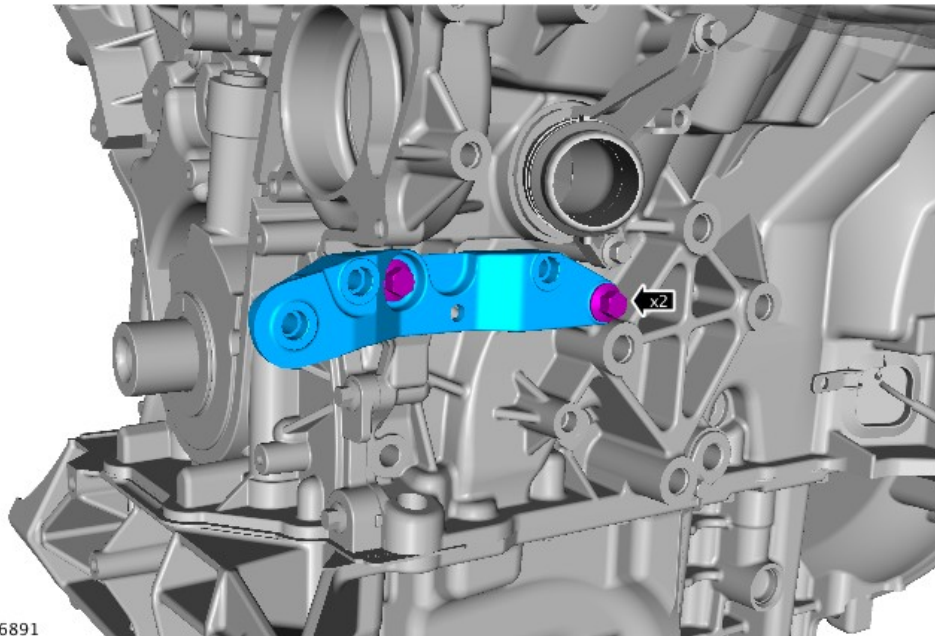
103.



- Remove the retaining bolt.
- Remove the turbocharger oil feed pipe.
- Discard the O-ring seal.

Renew Part: [Turbocharger oil supply tube to engine O-rings.](#)

104.



- Remove the two retaining bolts.
- Remove the A/C support bracket.

105.

CAUTIONS:

- Before disconnecting or removing components, ensure the area around the joint faces and connections are clean. Plug open connections to prevent contamination.
- Be prepared to collect escaping fuel.

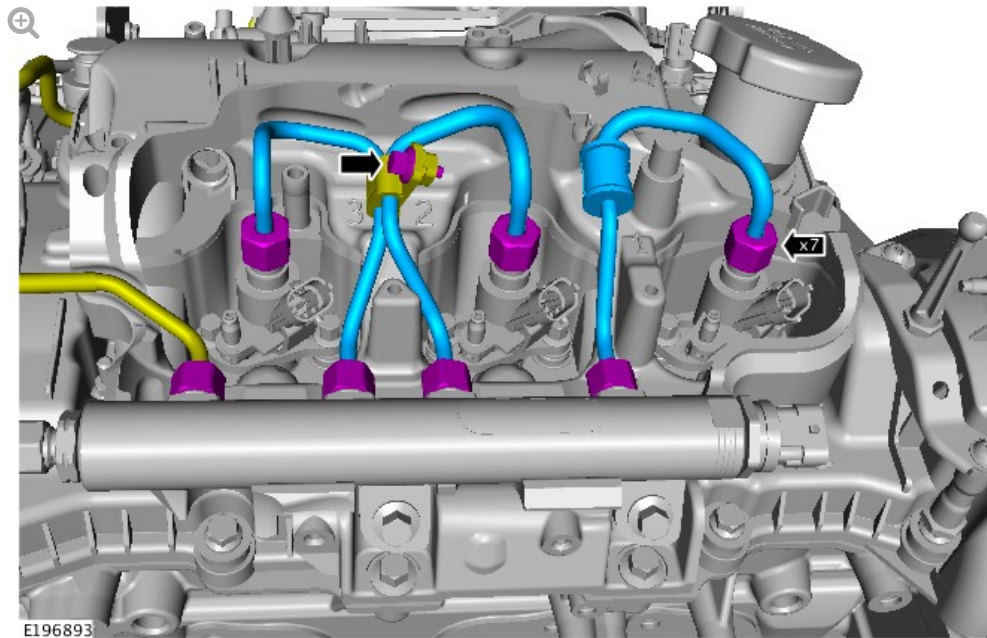


- Disconnect the 6 fuel injector return connectors.
- Disconnect the 2 high pressure connectors.
- Release the remaining clips as illustrated.
- Remove the fuel lines.

106.

CAUTION:

Be prepared to collect escaping fuel.



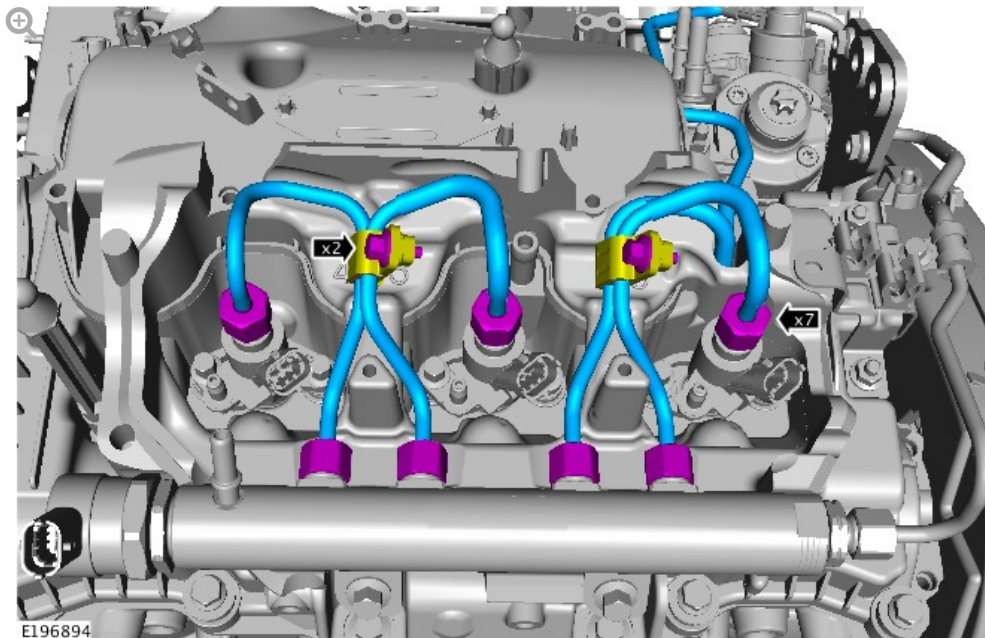
- Remove the fuel rail retaining bracket.
- Release the 7 high-pressure fuel rail connectors.
- Remove and discard the high-pressure fuel pipes.

Renew Part: [Fuel injector high pressure pipes](#).

107.

CAUTION:

Be prepared to collect escaping fuel.



- Remove the 2 fuel rail retaining brackets.
- Release the 7 high-pressure fuel rail connectors.
- Remove and discard the high-pressure fuel pipes.
Renew Part: [Fuel injector high pressure pipes](#).

108.

CAUTION:

Be prepared to collect escaping fuel.

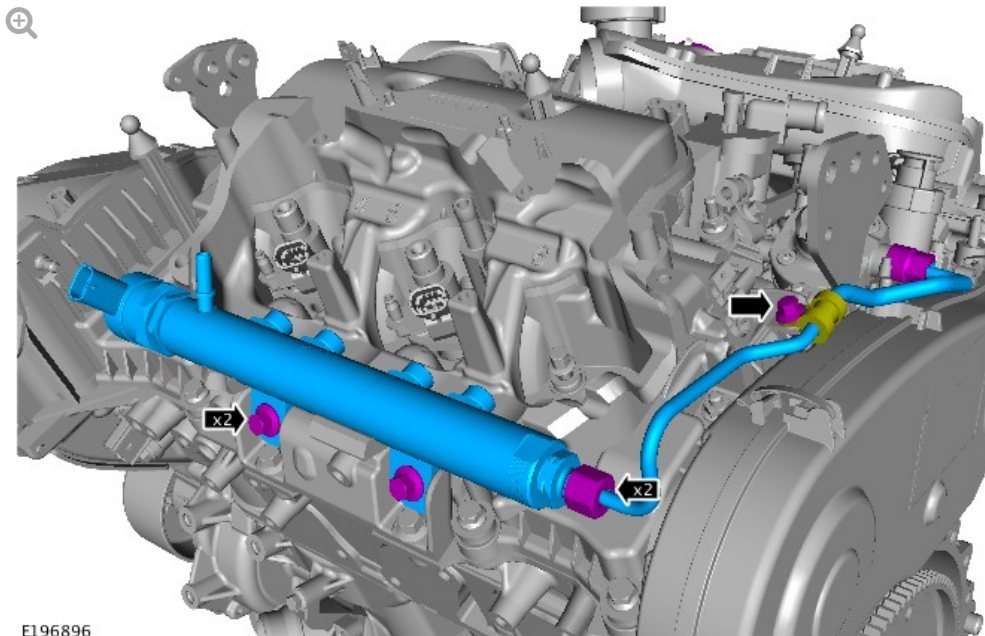


- Remove the retaining bolt.
- Remove and discard the fuel rail balance pipe.
Renew Part: [Fuel rail balance pipe](#).

109.

CAUTION:

Be prepared to collect escaping fuel.



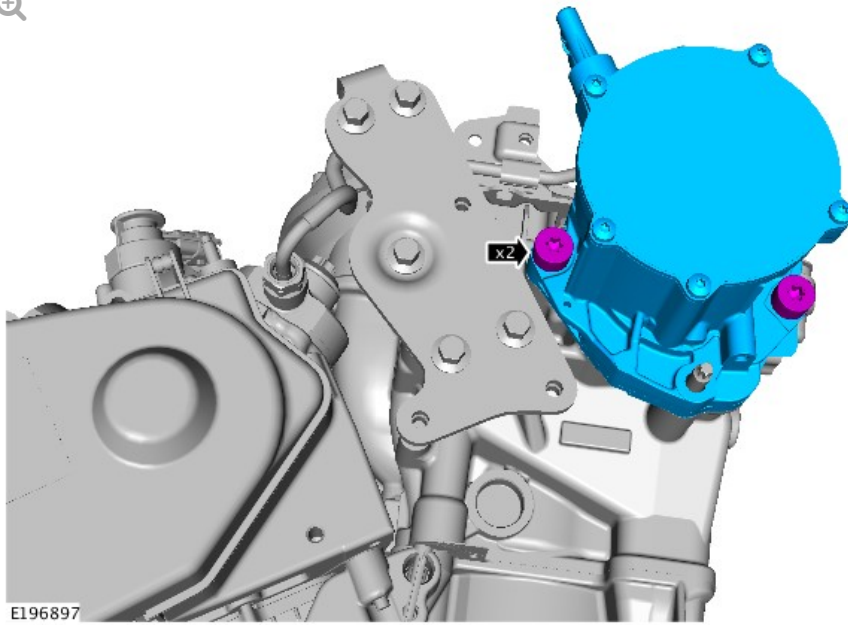
E196896

- Release the two high-pressure fuel connectors.
- Remove the fuel line securing bracket retaining bolt.
- Remove the high-pressure fuel pipe.
- Remove the fuel rail retaining bolts.
- Remove the fuel rail.

110.

CAUTION:

Be prepared to collect escaping fluids.

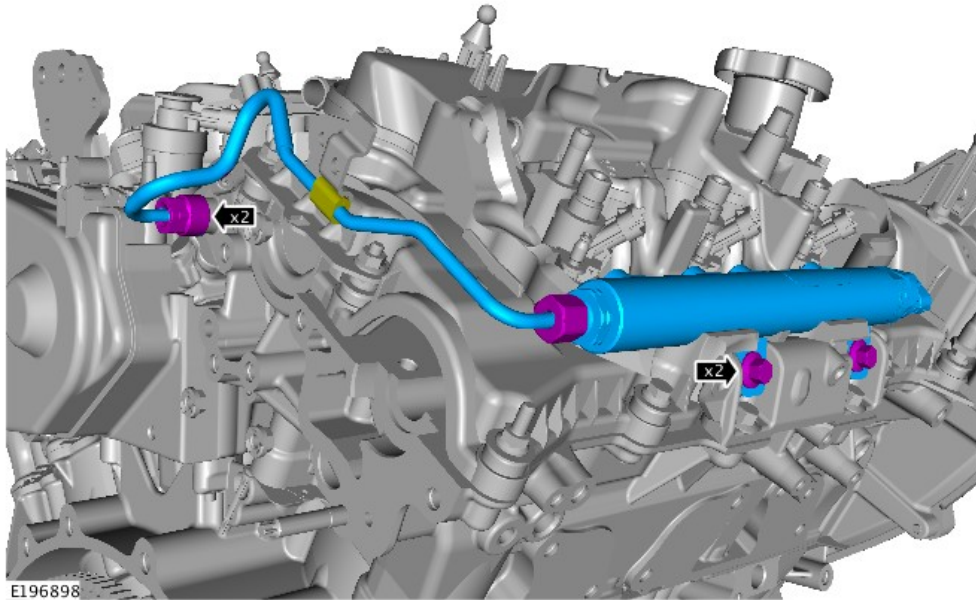


- Remove the two retaining bolts.
- Remove the brake vacuum pump.
- Discard the brake vacuum pump seal.
Renew Part: [Brake vacuum pump seal](#).

111.

CAUTION:

Be prepared to collect escaping fuel.

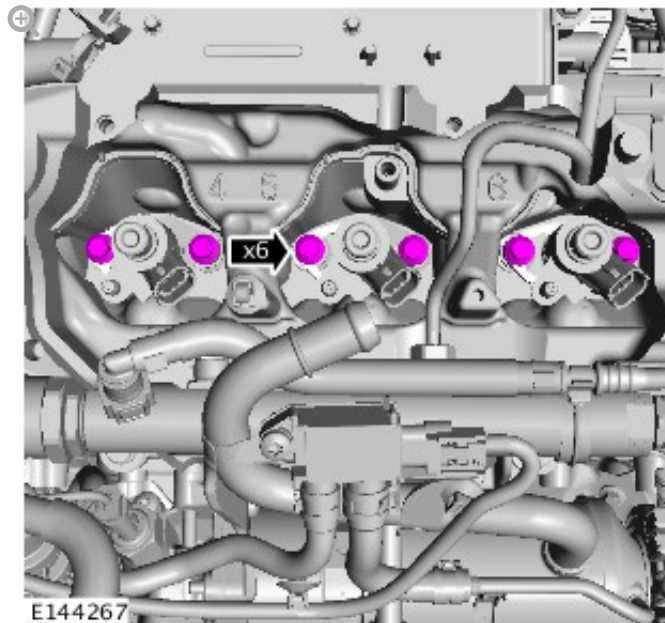


- Release the two high-pressure fuel connectors.
- Remove the high-pressure fuel pipe.
- Remove the fuel rail retaining bolts.
- Remove the fuel rail.

112.

NOTE:

Repeat this step for the remaining fuel injectors.

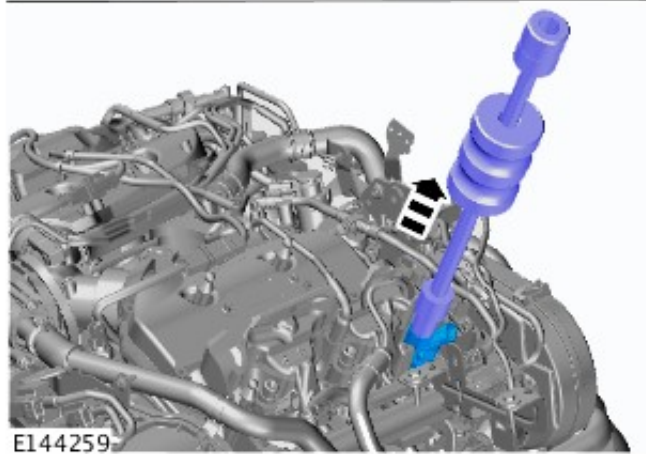
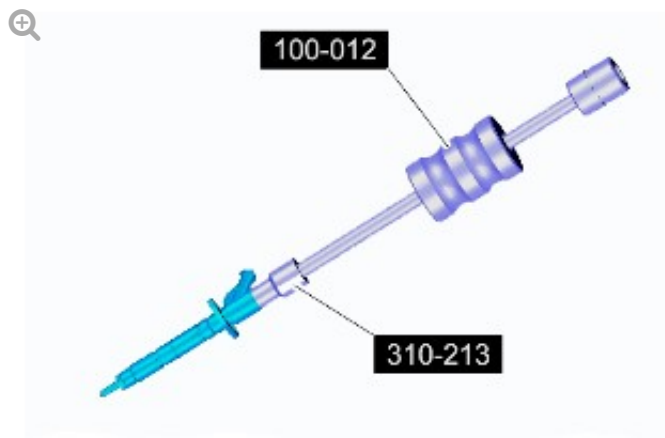


Remove the 6 fuel injector retaining bolts.

113.

NOTE:

Repeat this step for the remaining fuel injectors.

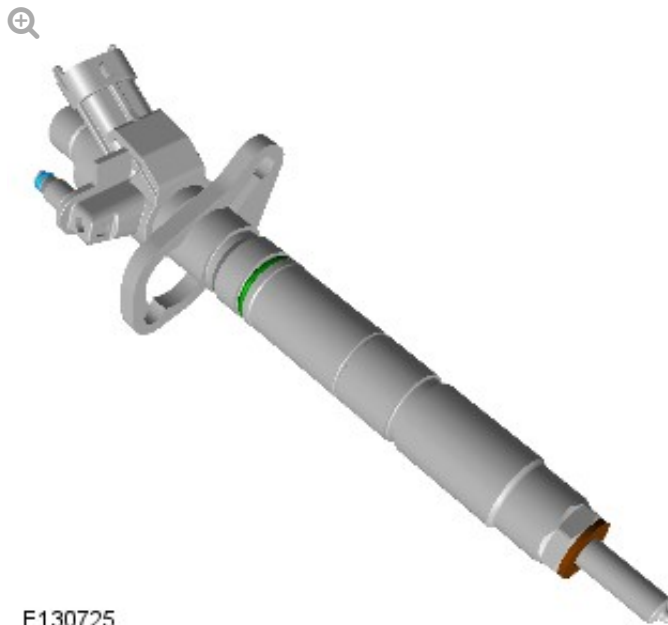


- Remove the fuel injector as illustrated.
- *Special Tool(s):* [100-012](#)
- *Special Tool(s):* [310-213](#)

114.

NOTE:

Repeat this step for the remaining fuel injectors.



E130725

- Remove and discard the O-ring seals.
Renew Part: [Fuel injector O-ring seals](#).
- Remove and discard the sealing washers.
Renew Part: [Fuel injector washers](#).

115.

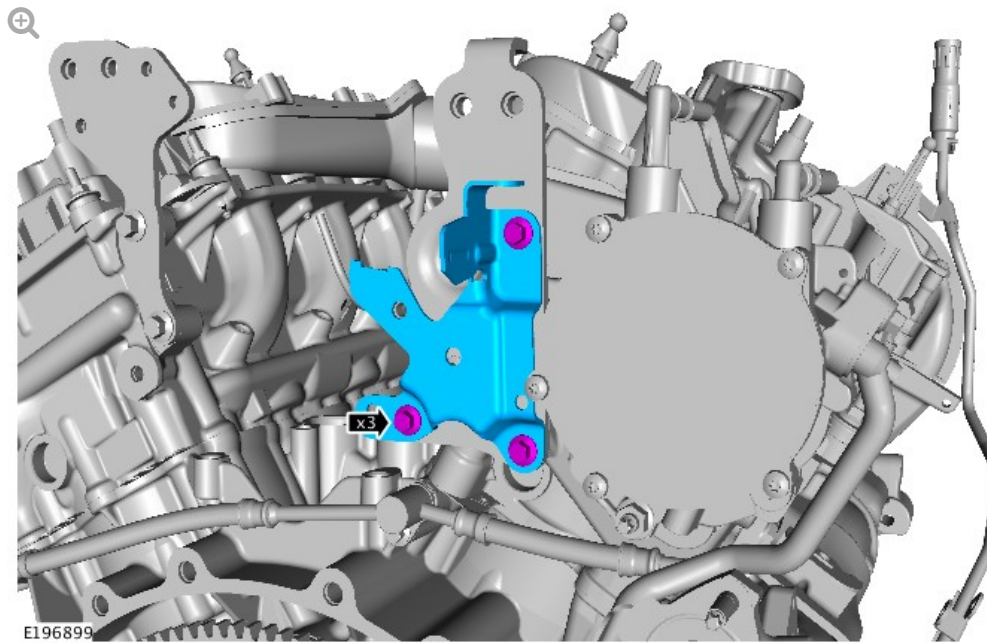
NOTE:

Please proceed to step 14 of this procedure.

Remove the fuel injection pump.

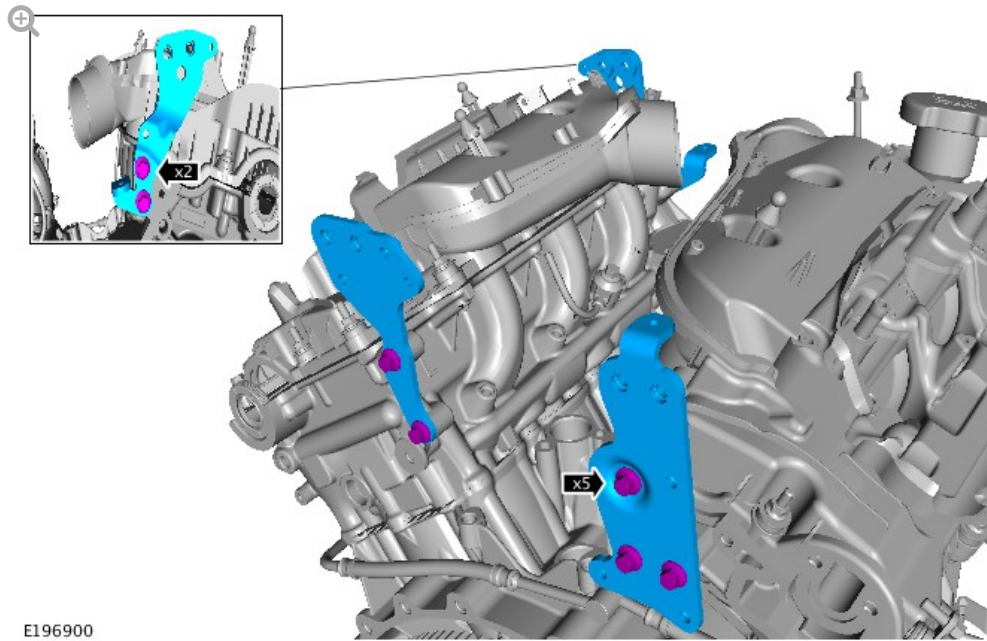
Refer to: [Fuel Pump](#) (303-04A Fuel Charging and Controls - TDV6 3.0L Diesel, Removal and Installation).

116.



Remove the bracket.

117.



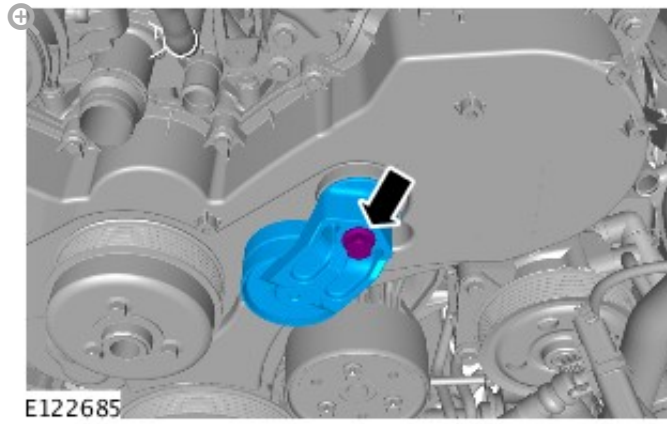
Remove the engine lift brackets.

118.



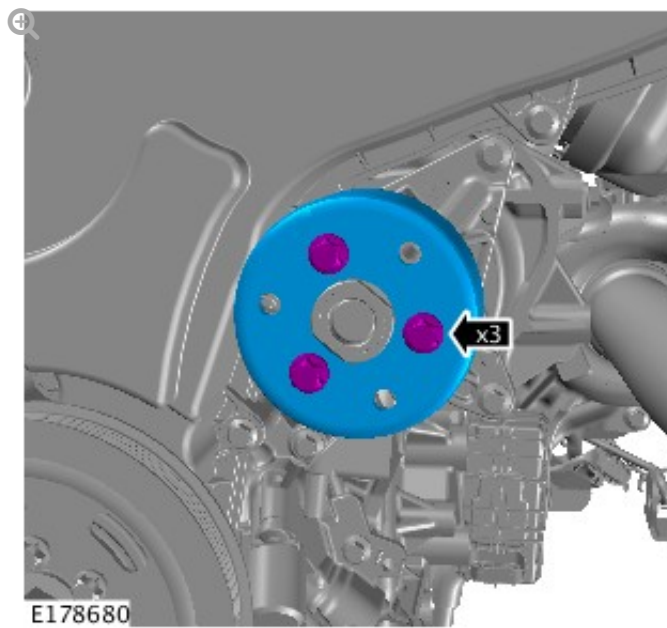
Remove the Engine Oil Pressure (EOP) sensor.

119.



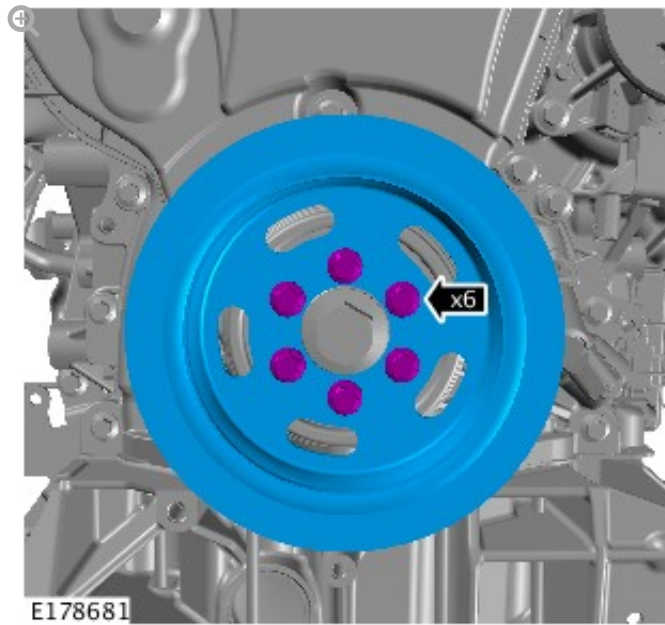
Remove the accessory drive belt idler pulley.

120.



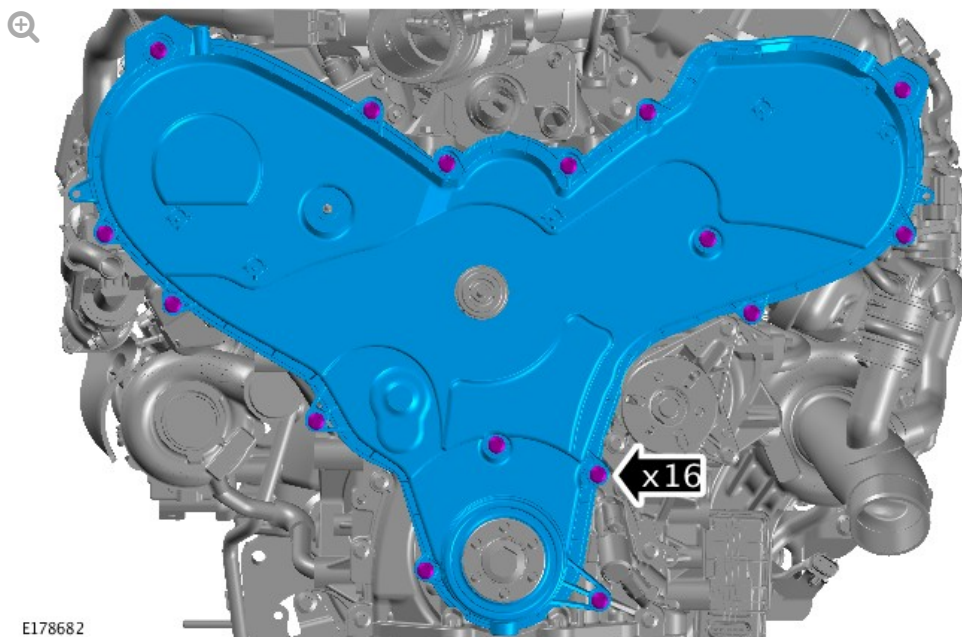
Remove the coolant pump pulley.

121.



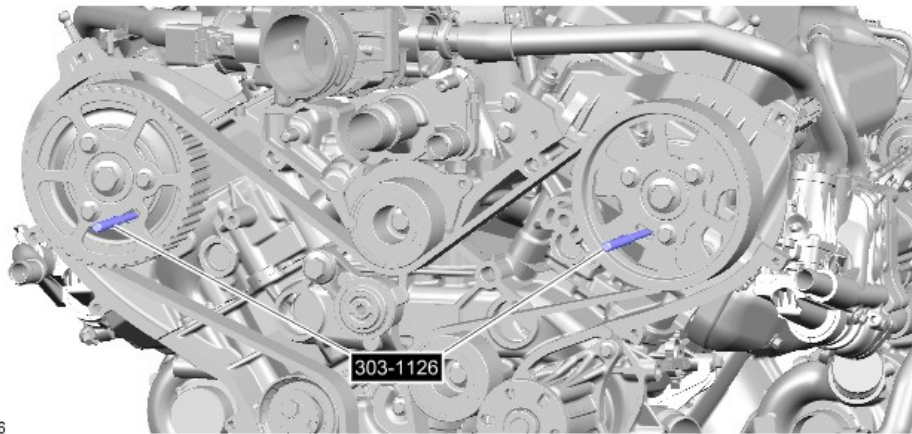
Remove the crankshaft pulley.

122.



Remove the timing belt cover.

123.

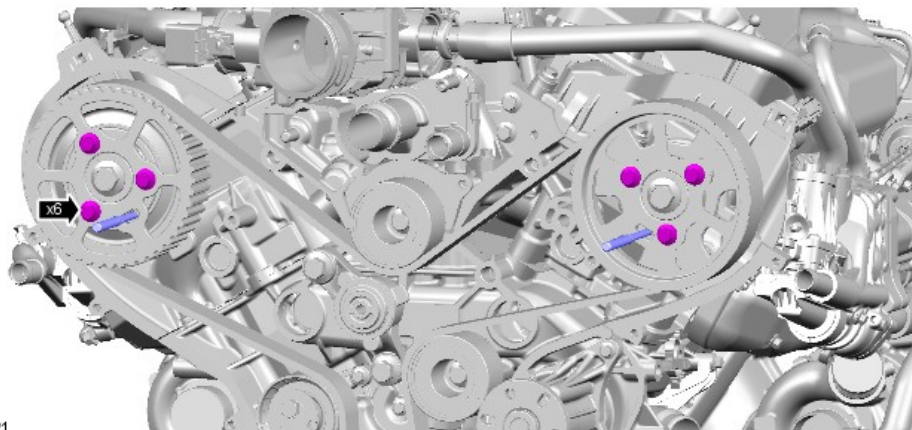


- Install the special tools.
- *Special Tool(s):* [303-1126](#)

124.

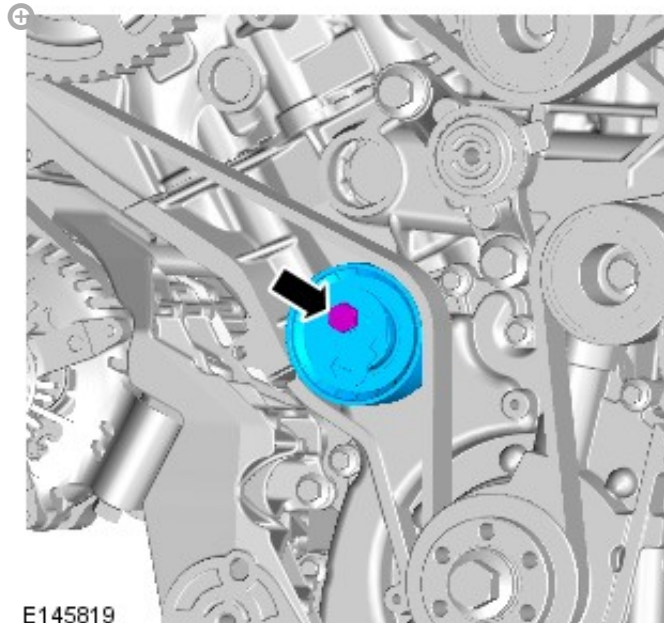
CAUTION:

Do not rotate camshafts against locking peg. Failure to follow this instruction may result in damage to the engine or the special tools.



Loosen the bolts no more than two turns.

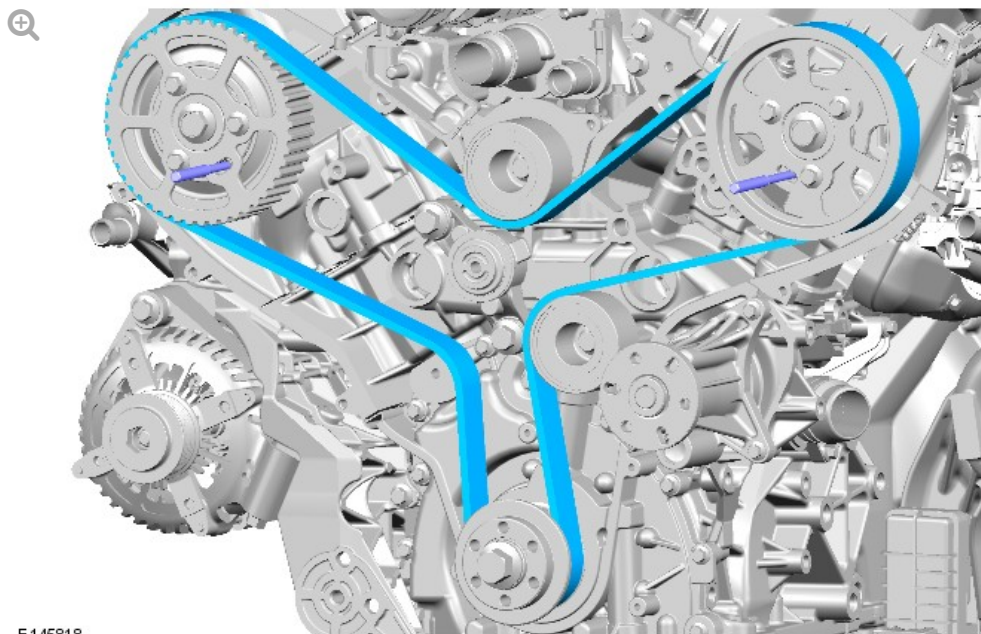
125.



E145819

- Remove and discard the bolt.
- Remove and discard the timing belt tensioner.
Renew Part: [Timing belt and tensioner kit.](#)

126.



E145818

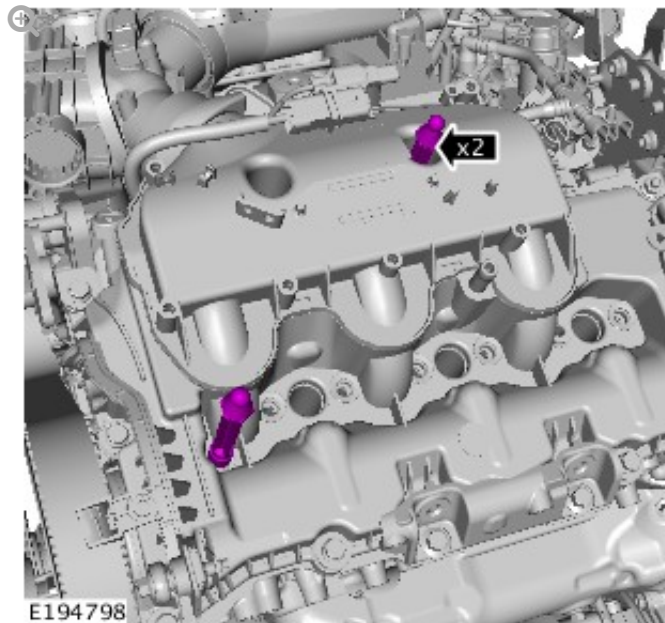
Remove and discard the timing belt.

127.



Remove the valve cover insulation.

128.



Remove the pins.

129.



Remove the fuel pipe bracket.

130.



Remove the fuel rail support bracket.

131.

NOTE:

Remove and discard the gasket.



Remove the camshaft cover.

Renew Part: [Camshaft cover gasket](#).

132.



Remove the valve cover insulation.

133.



Remove the bracket.

134.



Remove the pins.

135.



Remove the fuel pipe bracket.

136.



Remove the fuel rail support bracket.

137.

NOTE:

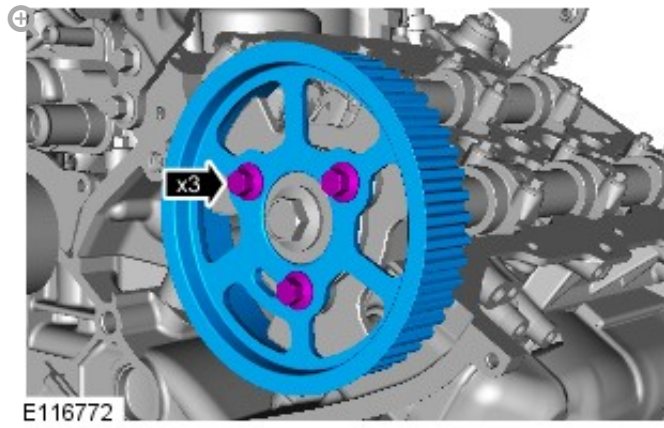
Remove and discard the gasket.



Remove the camshaft cover.

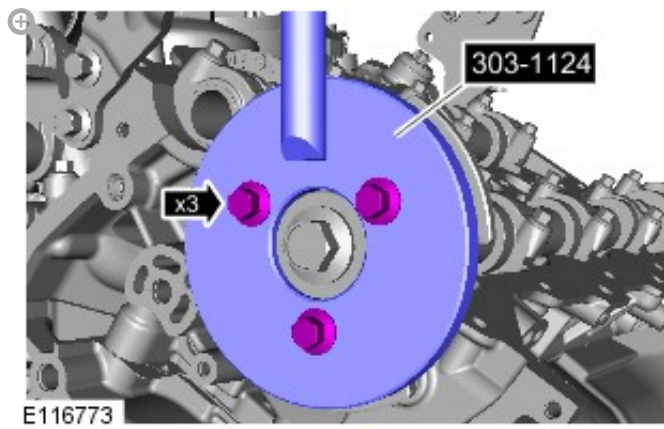
Renew Part: [Camshaft cover gasket](#).

138.



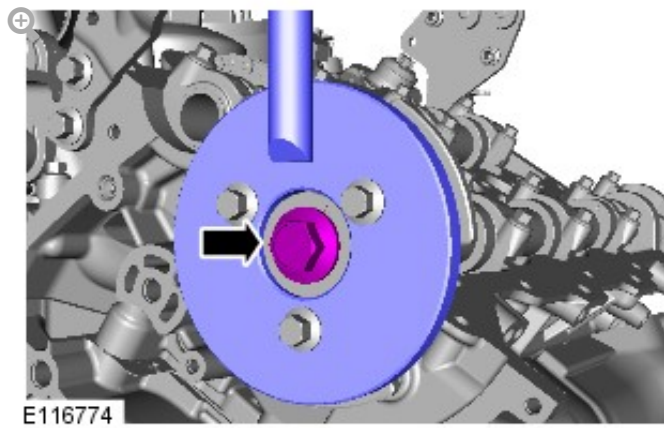
Remove the camshaft pulley.

139.



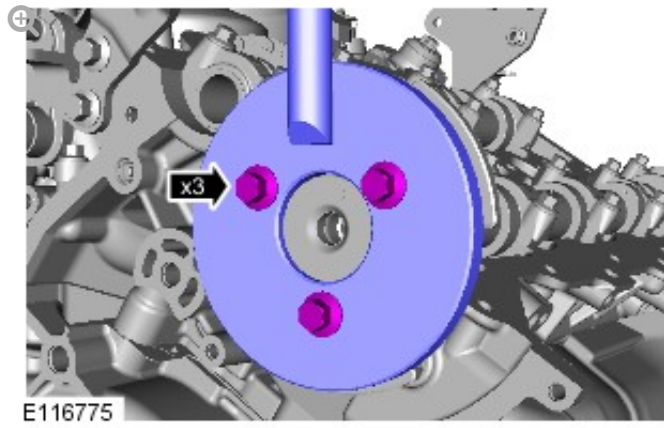
- Install the special tool.
- *Special Tool(s):* [303-1124](#)

140.



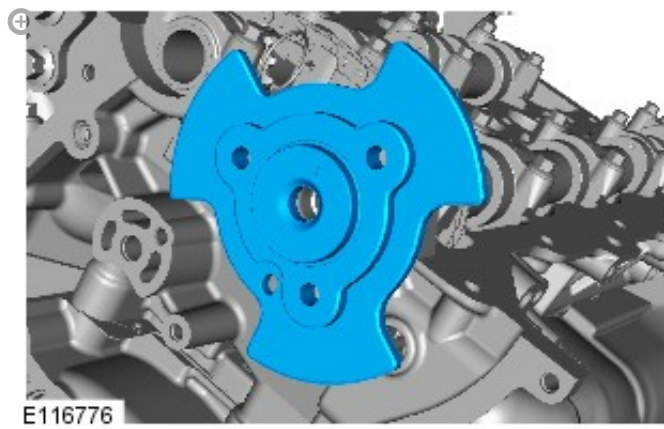
Remove the camshaft sprocket hub retaining bolt.

141.



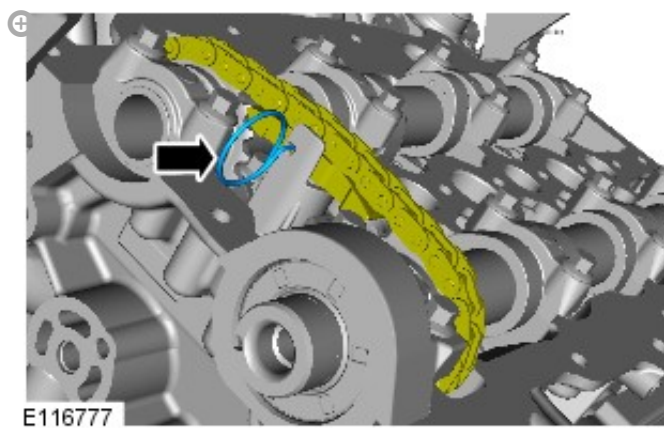
Remove the special tool.

142.



Remove the camshaft sprocket hub.

143.



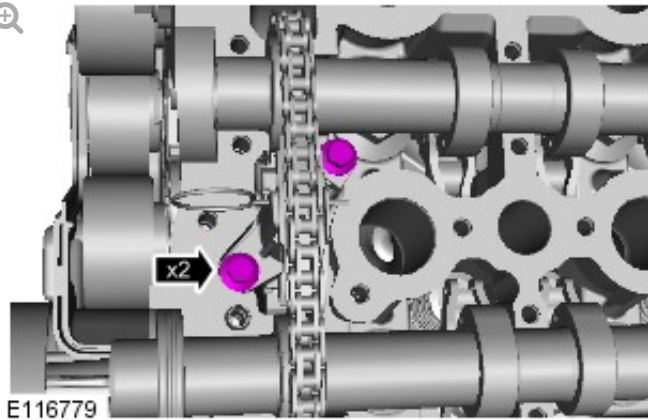
- Reposition the secondary timing chain tensioner.
- Retain the secondary timing chain tensioner plunger.

144.



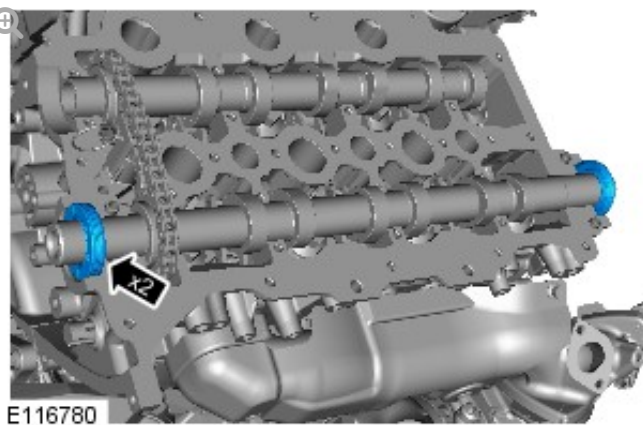
Remove the camshaft bearing caps evenly.

145.



Remove the secondary timing chain tensioner retaining bolts.

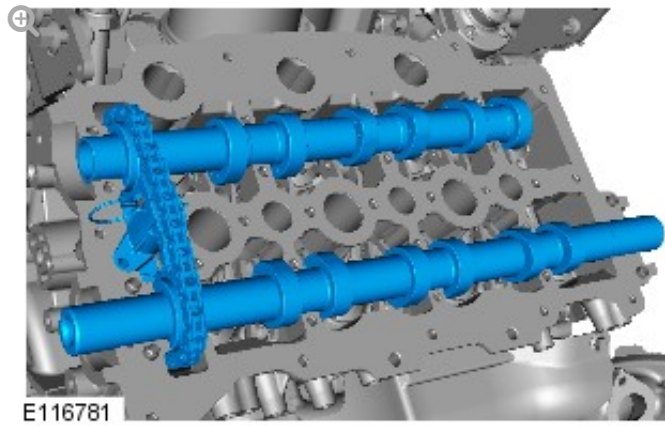
146.



Discard the seals.

Renew Part: [Camshaft seal](#).

147.



Remove the camshafts.

148.



Remove the camshaft pulley.

149.



- Install the special tool.
- *Special Tool(s):* [303-1124](#)

150.



Remove the camshaft sprocket hub retaining bolt.

151.



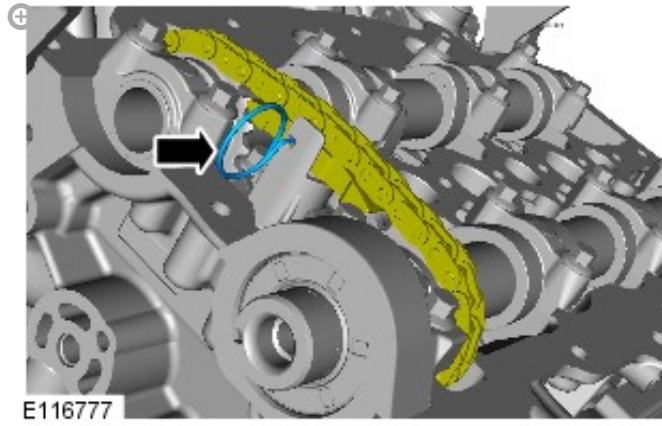
Remove the special tool.

152.



Remove the camshaft pulley.

153.



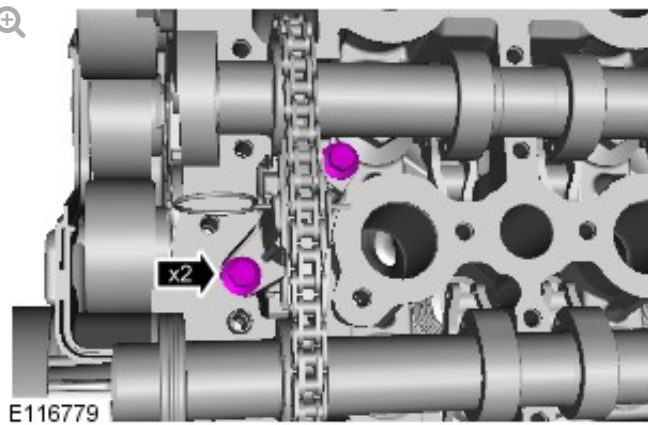
- Reposition the secondary timing chain tensioner.
- Retain the secondary timing chain tensioner plunger.

154.



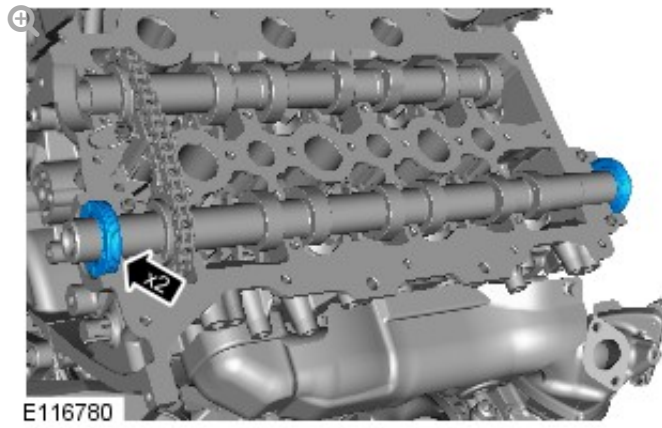
Remove the camshaft bearing caps evenly.

155.



Remove the secondary timing chain tensioner retaining bolts.

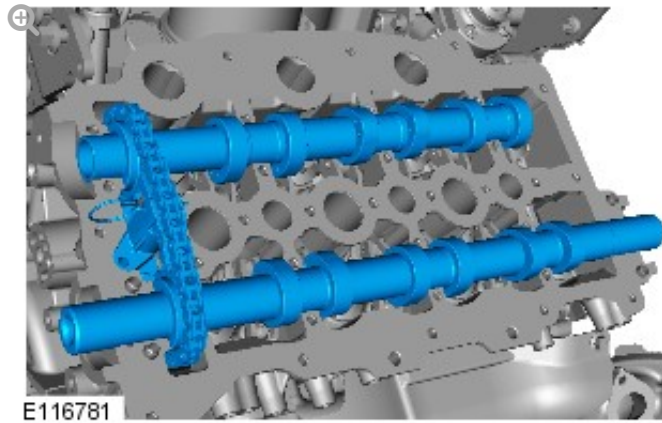
156.



Discard the seals.

Renew Part: [Camshaft seal](#).

157.



Remove the camshafts.

158.

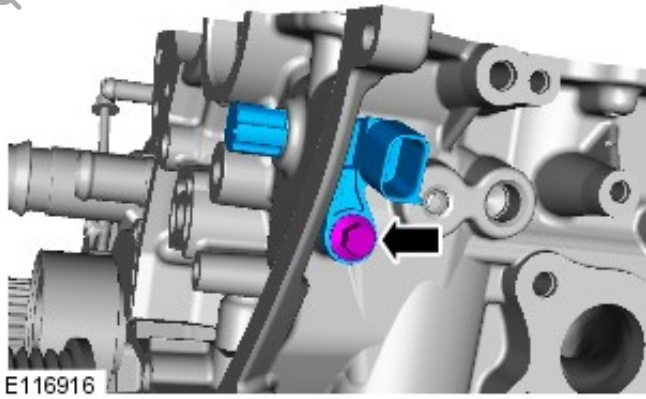
NOTE:

Repeat the step for the other side.



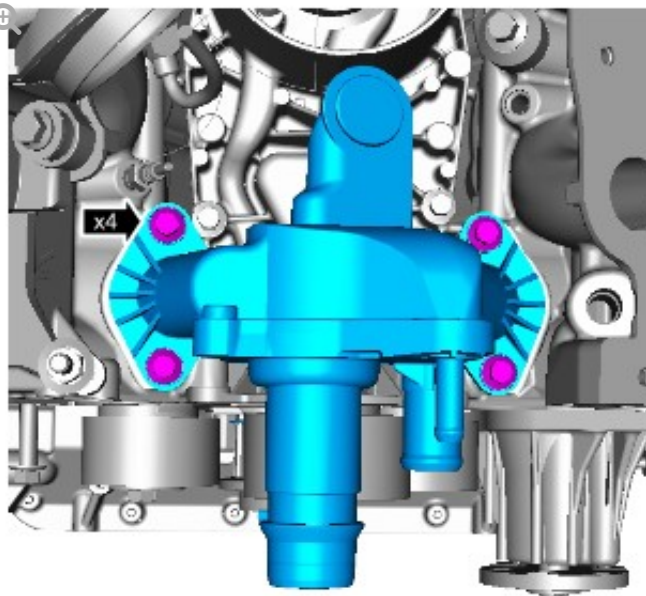
Remove the glow plugs.

159.



Remove the camshaft position (CMP) sensor.

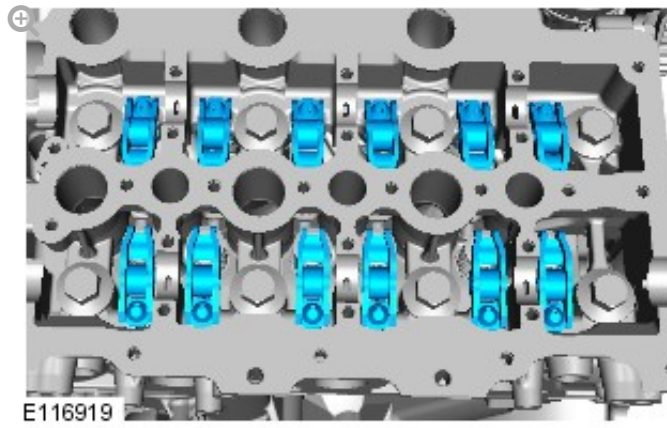
160.



161.

NOTE:

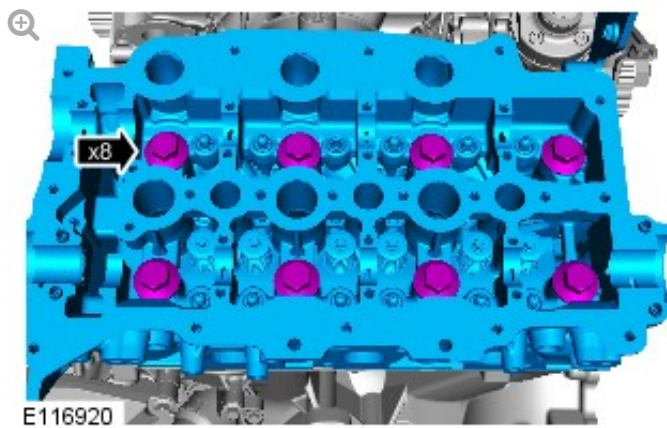
Repeat the step for the other side.



162.

NOTE:

Repeat the step for the other side.



- Remove and discard the bolts.
Renew Part: [Cylinder head bolts](#).
- Remove the cylinder head.
- Remove and discard the cylinder head gasket.
Renew Part: [Cylinder head gasket](#).

163.



Remove the oil cooler.

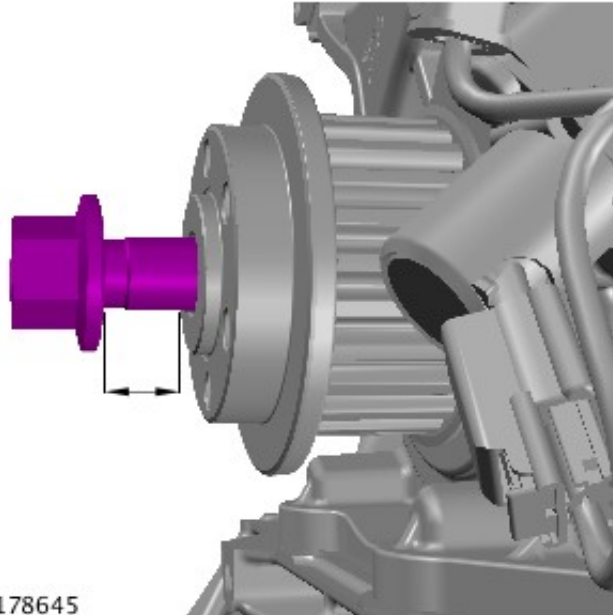
164.



Discard the O-ring seals.

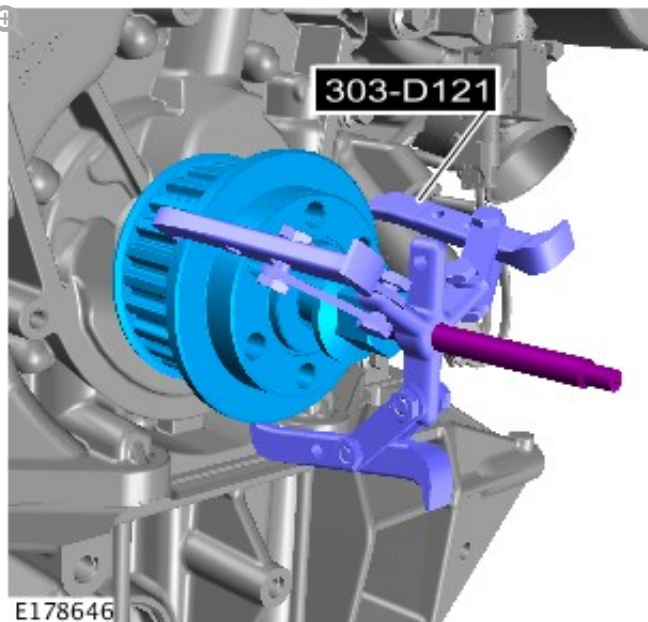
Renew Part: [Oil cooler O-ring seals](#).

165.



Loosen, but do not fully remove the bolt.

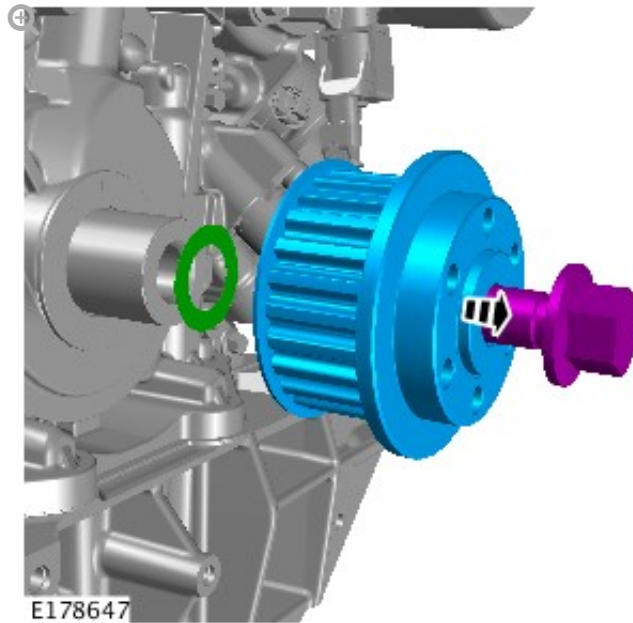
166.



- Insert the special tool.
- *Special Tool(s):* [303-D121](#)

- Using the special tools, remove the crankshaft pulley.

167.



- Remove and discard the bolt.
Renew Part: [Crankshaft pulley bolt](#).
- Discard the friction washer.
Renew Part: [Crankshaft pulley friction washer](#).

168.



Remove the viscous fan drive pulley.

169.

NOTE:

Discard the gasket.



Remove the coolant pump.

Renew Part: [Engine coolant pump gasket](#).

170.



Remove the coolant outlet channel.

171.



Remove the crankshaft position (CKP) sensor.

172.



Remove the flexplate.

173.

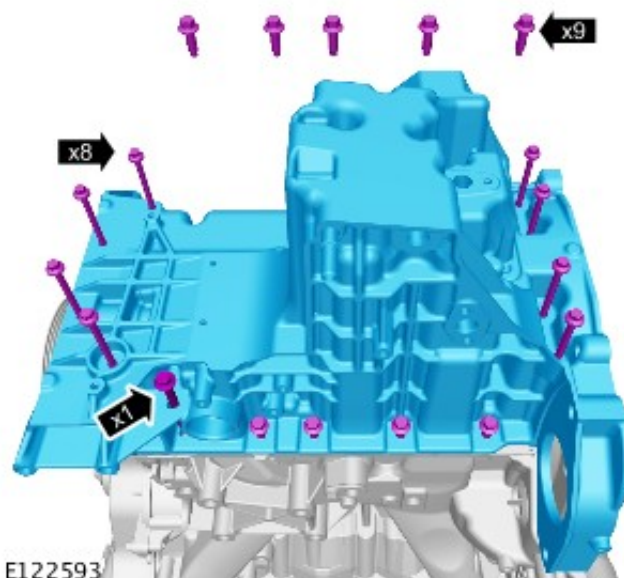


Remove the CKP sensor ring.

174.

NOTE:

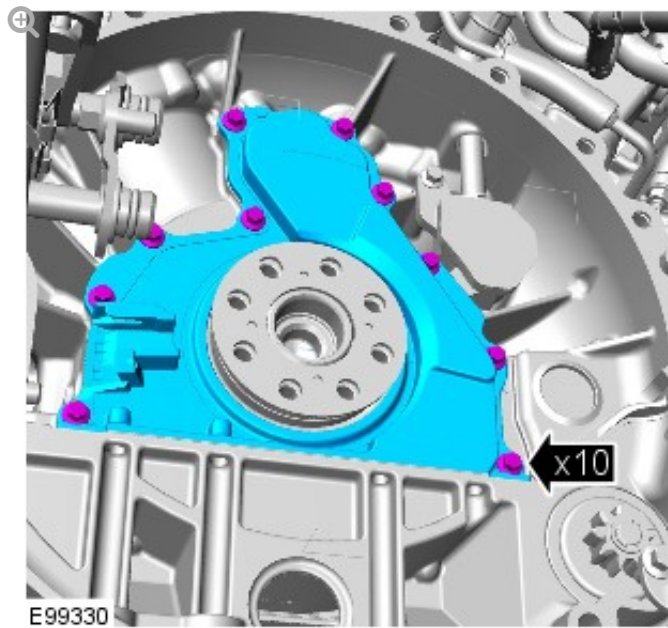
Discard the oil pan gasket.



Remove the oil pan.

Renew Part: [Oil pan gasket](#).

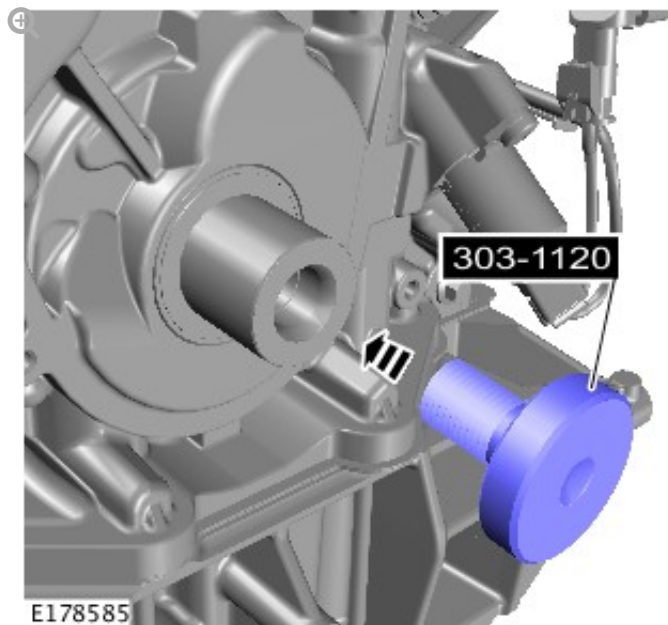
175.



Remove and discard the rear crankshaft oil seal.

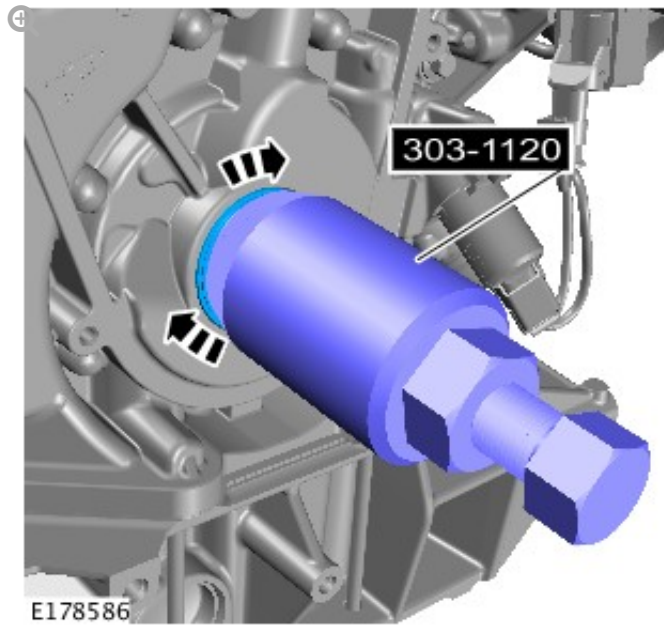
Renew Part: [Rear crankshaft seal](#).

176.



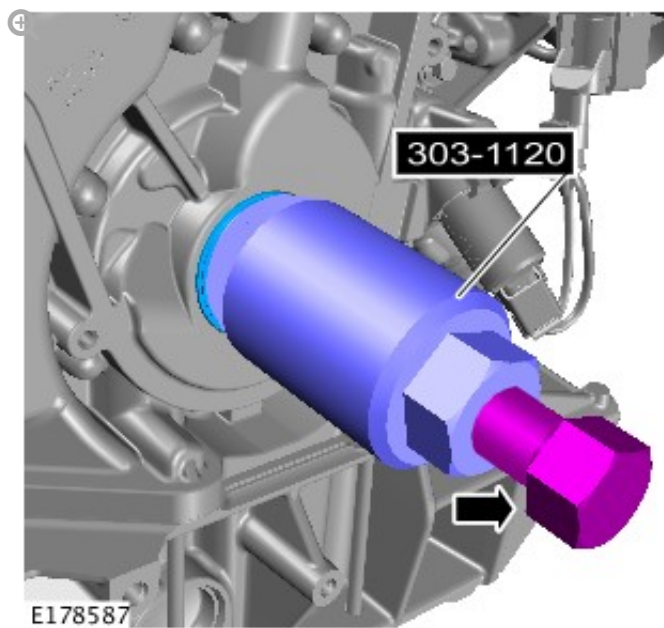
- Install the special tool to the crankshaft.
- *Special Tool(s):* [JLR-303-1120-01](#)

177.



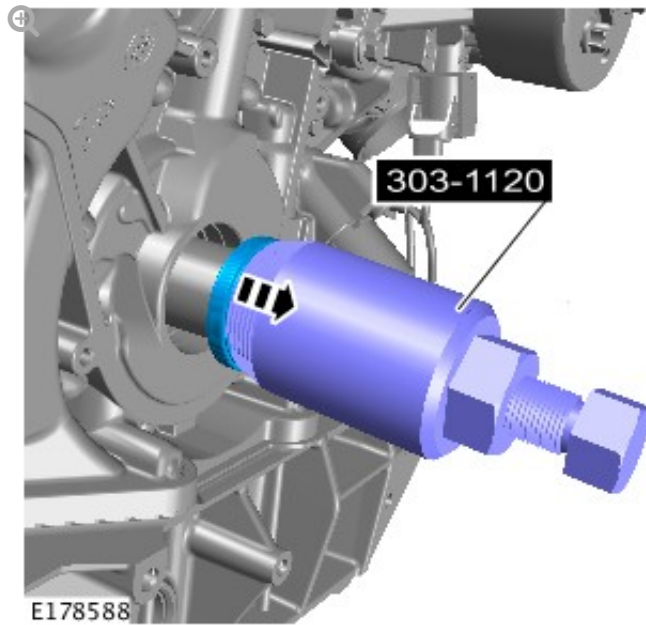
Install the special tool to the crankshaft, rotate the special tool to engage the crankshaft front oil seal as shown.

178.



Rotate the special tool release bolt.

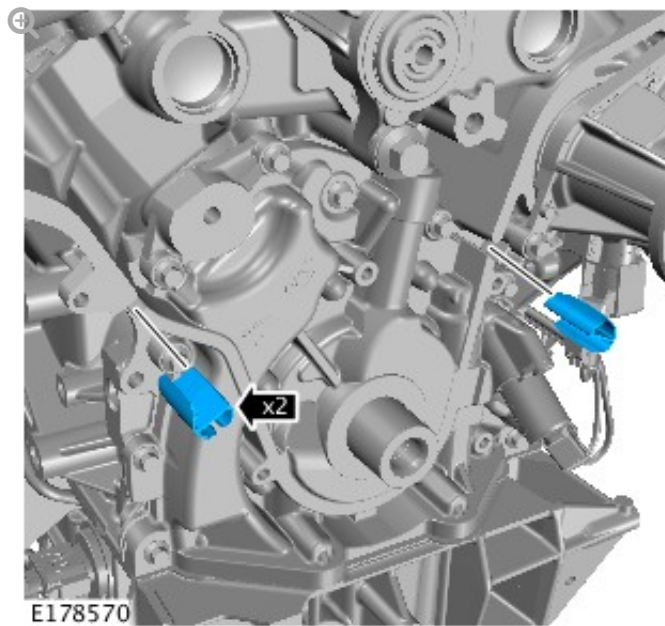
179.



Using the special tool, remove and discard the crankshaft front oil seal.

Renew Part: [Crankshaft front oil seal](#).

180.

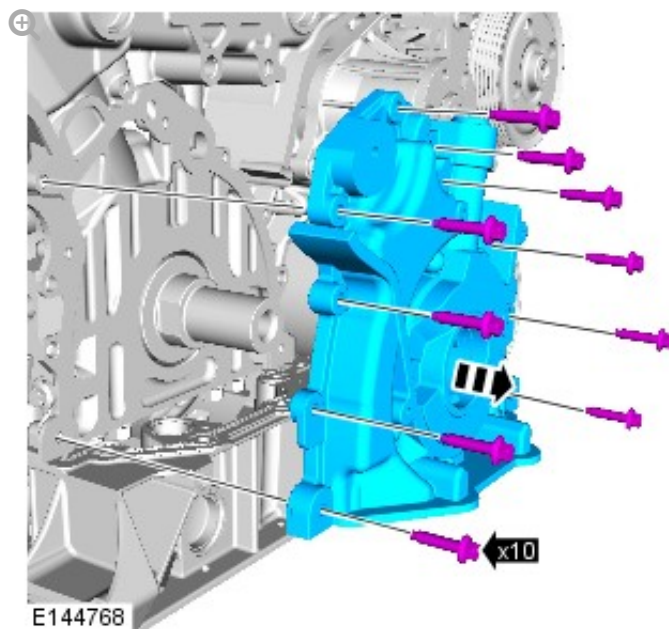


Remove and discard the oil pump sealing strips.

181.

NOTE:

Discard the gasket.



Remove the oil pump.

Renew Part: *Oil pump gasket.*