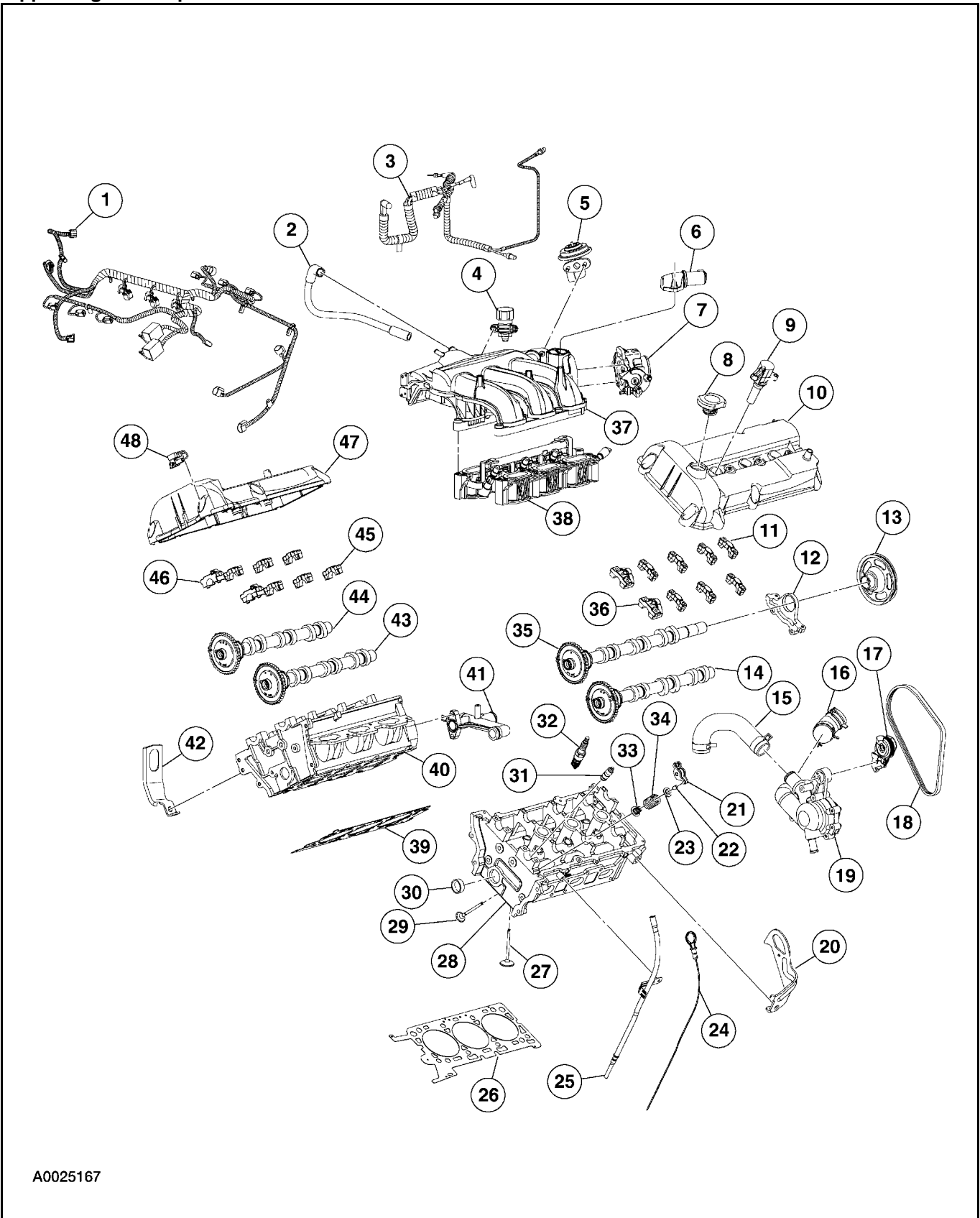


DESCRIPTION AND OPERATION

Upper Engine Components



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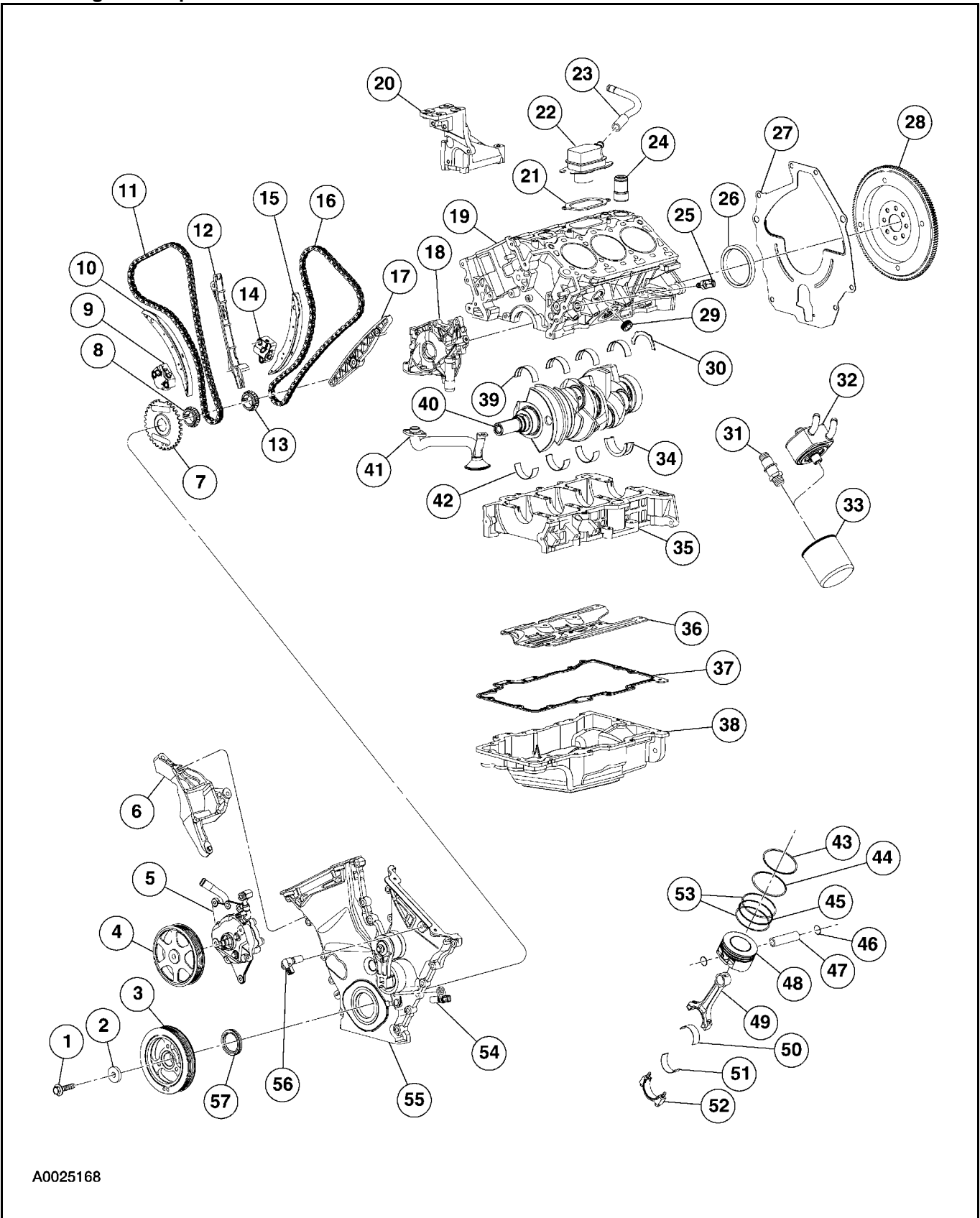
DESCRIPTION AND OPERATION (Continued)

Item	Part Number	Description
1	9H589	Engine control sensor and fuel charging wiring harness
2	6C658	Evaporative emissions tube
3	9E498	Vacuum harness
4	9J472	Exhaust gas recirculation (EGR) vacuum regulator
5	9D460	EGR valve
6	9F715	Idle air control (IAC) valve
7	9E926	Throttle body
8	6766	Oil fill cap
9	12A366	Coil-on-plug
10	6A505	Valve cover
11	6A258	Camshaft journal caps
12	6B293	Camshaft oil seal retainer
13	6A359	Pulley
14	6A269	Exhaust camshaft
15	8A577	Water pump outlet hose
16	8501	Water pump inlet hose
17	8W508	Belt tensioner (if equipped)
18	8K543	Belt
19	8501	Water pump
20	17A084	Lifting bracket
21	6529	Camshaft follower
22	6518	Valve spring retainer key
23	6514	Valve spring retainer
24	6750	Oil level indicator

Item	Part Number	Description
25	6754	Oil level indicator tube
26	6083	Cylinder head gasket
27	6507	Exhaust valve
28	6050	LH cylinder head
29	6505	Intake valve
30	W701501	Cup plug
31	6C501	Hydraulic lash adjuster
32	12405	Spark plug
33	6A517	Valve stem seal
34	6513	Valve spring
35	6A267	Intake camshaft
36	6B280	Camshaft bearing thrust cap
37	9424	Upper intake manifold
38	9J447	Lower intake manifold
39	6051	Head gasket
40	6049	RH cylinder head
41	8548	Thermostat housing
42	17A084	Lifting bracket
43	6A266	Intake camshaft
44	6A266	Exhaust camshaft
45	6A258	Camshaft journal cap
46	6B280	Camshaft bearing thrust cap
47	6582	Valve cover
48	18801	Radio ignition interference

DESCRIPTION AND OPERATION

Lower Engine Components



A0025168

DESCRIPTION AND OPERATION (Continued)

Item	Part Number	Description
1	W701512	Crankshaft vibration damper bolt
2	W701511	Crankshaft vibration damper washer
3	6316	Crankshaft vibration damper
4	3A733	Power steering pump pulley
5	3D639	Power steering pump
6	10239	Generator bracket
7	12A227	Ignition pulse wheel
8	6306	Crankshaft sprocket
9	6L266	R/H timing chain tensioner
10	6K255	R/H timing chain guide
11	6268	R/H timing chain
12	6M256	R/H timing chain guide
13	6306	Crankshaft sprocket
14	6L266	L/H timing chain tensioner
15	6K255	L/H timing chain guide
16	6268	L/H timing chain
17	6B274	L/H timing chain guide
18	6621	Oil pump
19	6010	Engine block
20	3K738	Bracket
21	6B752	Oil separator gasket
22	6B673	Oil separator
23	6K817	Crankcase emission hose
24	8A505	Water inlet tube
25	9278	Oil pressure switch
26	6701	Crankshaft rear oil seal
27	6A373	Engine separator plate
28	6375	Flywheel
29	W701548	Plug
30	6A341	Crankshaft thrust washer
31	6890	Oil filter insert
32	6A642	Oil cooler
33	6714	Oil filter

Item	Part Number	Description
34	6A339	Crankshaft thrust bearing
35	6F095	Lower cylinder block
36	6687	Oil pan baffle
37	6710	Oil pan gasket
38	6675	Oil pan
39	6333	Crankshaft main bearings
40	6303	Crankshaft
41	6622	Oil pickup tube and screen
42	6A338	Crankshaft main bearings
43	6150	Upper compression ring
44	6152	Lower compression ring
45	6161	Oil control ring spacer
46	6140	Piston pin clip
47	6135	Piston clip
48	6110	Piston
49	6200	Connecting rod
50	6211	Connecting rod bearings
51	6211	Connecting rod bearings
52	6205	Connecting rod bearing cap
53	6159	Oil control rings
54	6C315	Crankshaft position sensor
55	6C086	Front cover
56	6B288	Camshaft position sensor
57	6700	Crankshaft front seal

DIAGNOSIS AND TESTING

Engine

Refer to Section 303-00 for basic mechanical concerns. Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual for driveability concerns.

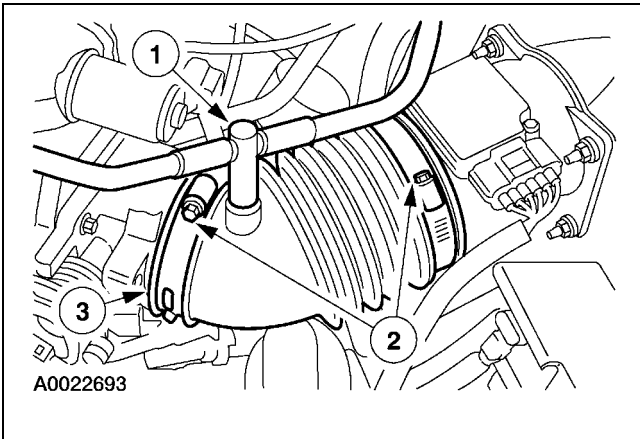
IN-VEHICLE REPAIR

Upper Intake Manifold (21 183 0)

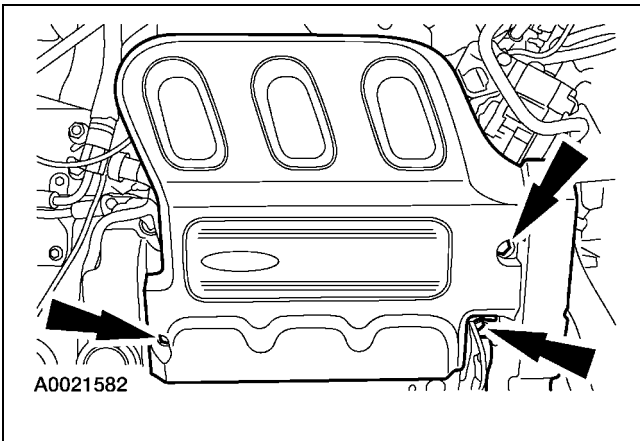
Removal

1. Remove the air cleaner outlet tube.

1. Remove the crankcase ventilation tube.
2. Loosen the clamps.
3. Remove the air cleaner outlet tube.

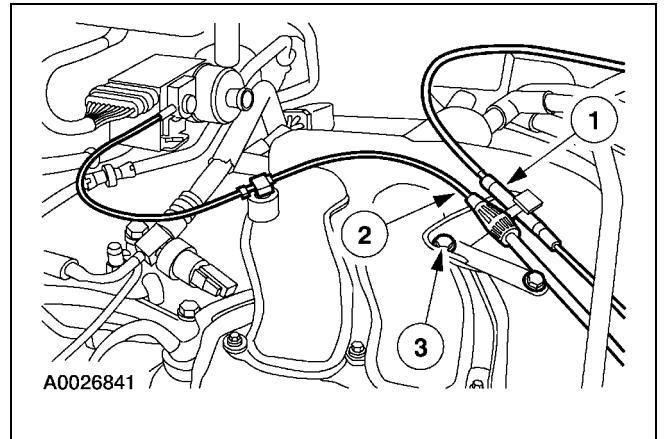


2. Remove the three nuts and the engine appearance cover.

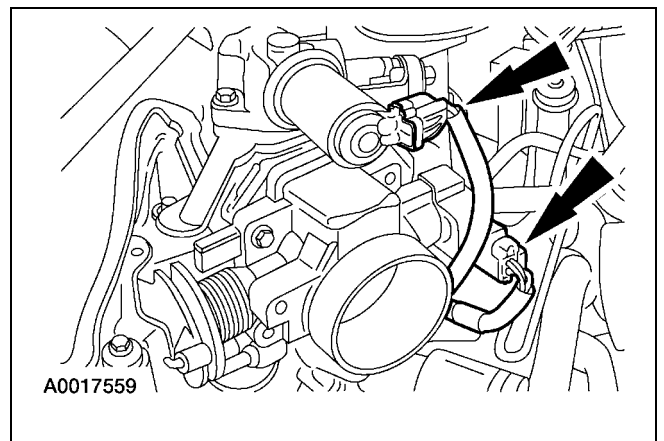


3. Disconnect the cables.

1. Disconnect the throttle cable.
2. If equipped, disconnect the speed control cable.
3. Remove the throttle cable bracket bolts.

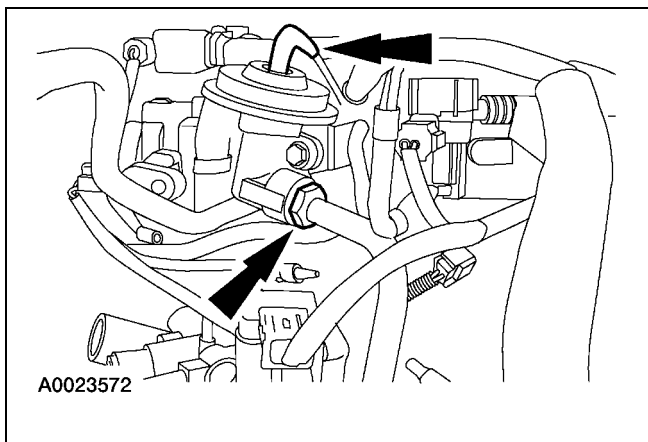


4. Disconnect the throttle position (TP) sensor and idle air control (IAC) electrical connectors.

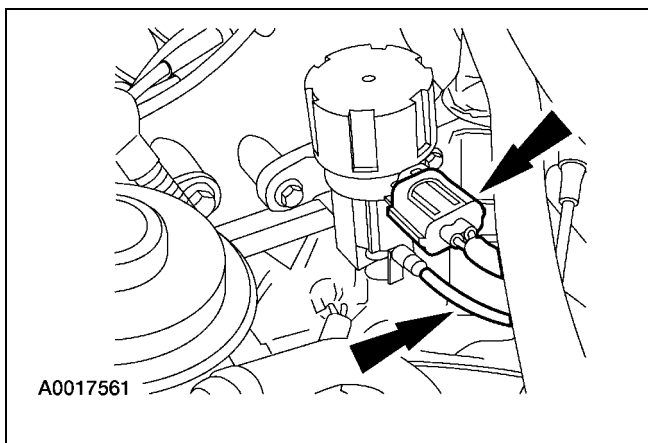


IN-VEHICLE REPAIR (Continued)

5. Disconnect the exhaust gas recirculation (EGR) valve vacuum hose and EGR tube nut.

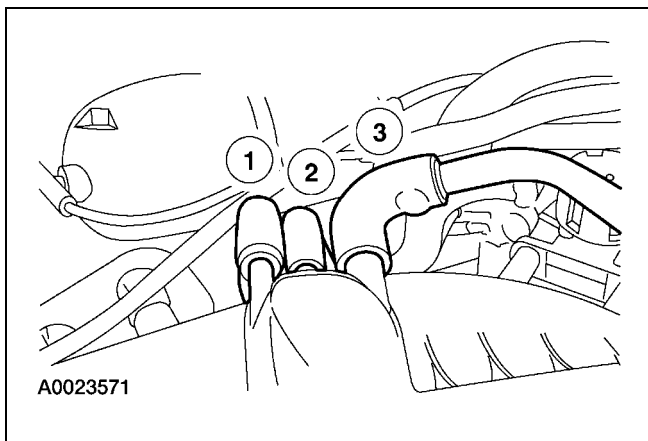


6. Disconnect the EGR vacuum regulator valve electrical connector and vacuum hose.

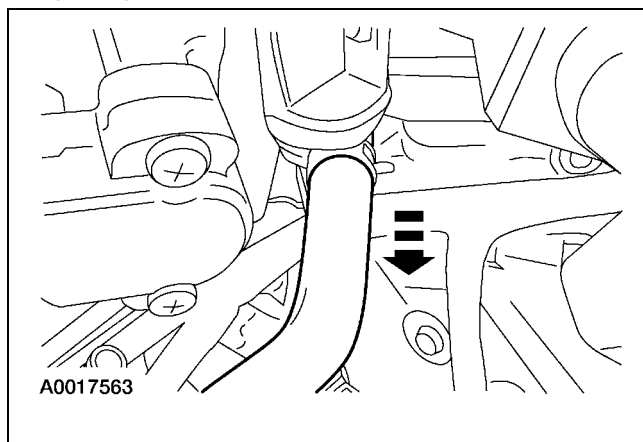


7. Disconnect the three vacuum hoses on the back of the intake manifold.

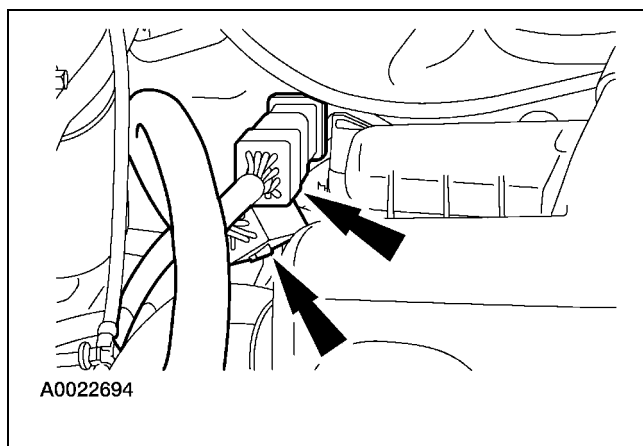
1. Disconnect the chassis vacuum hose.
2. Disconnect the engine vacuum hose.
3. Disconnect the positive crankcase ventilation (PCV) hose.



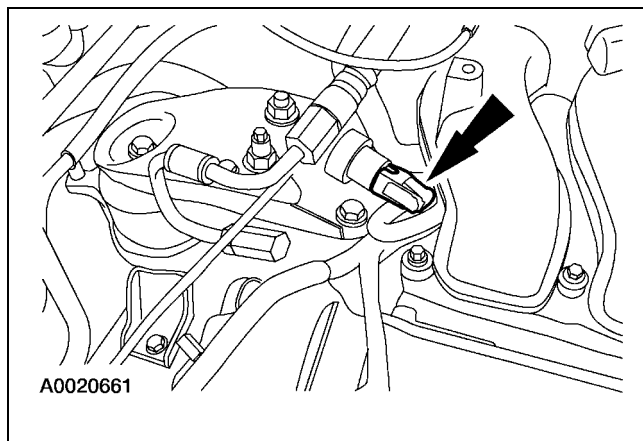
8. Disconnect the vapor management valve (VMV) vacuum hose.



9. Disconnect the two electrical connectors attached to the left side of the upper intake manifold.



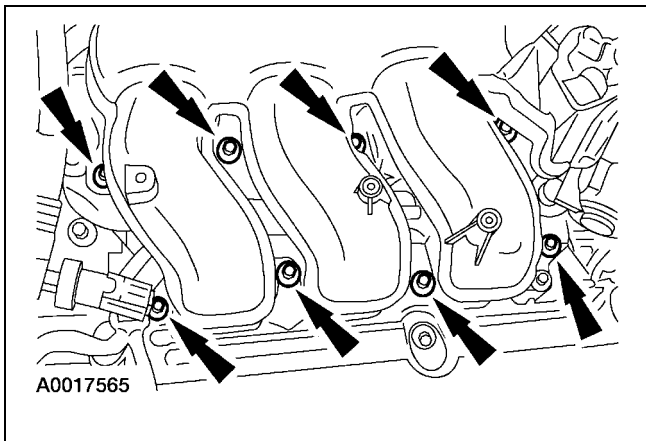
10. Disconnect the power steering pressure (PSP) sensor electrical connector.



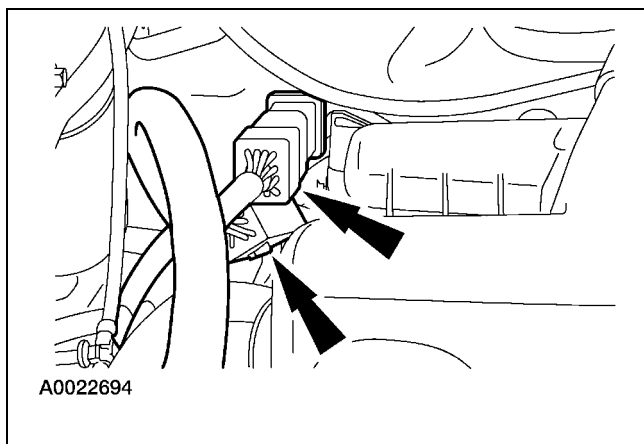
IN-VEHICLE REPAIR (Continued)

11. Remove the eight bolts and the upper intake manifold.

- Remove and inspect the gaskets. Discard if damaged.
- Clean all sealing surfaces.

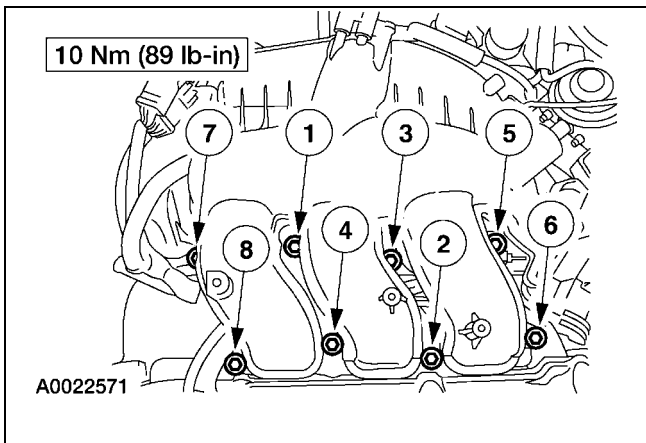


4. Install the two electrical connectors on the left side of the intake manifold.

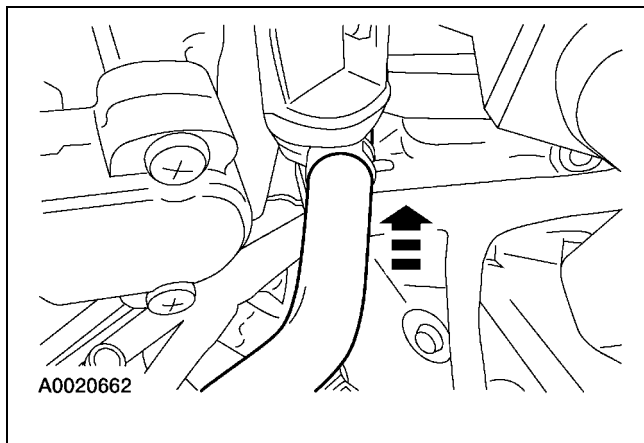


Installation

- 1. Position the gaskets in the upper intake manifold.**
- 2. Position the upper intake manifold and tighten the bolts in the sequence shown.**



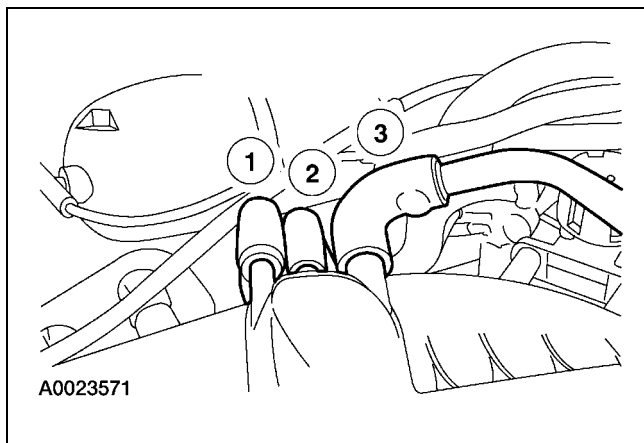
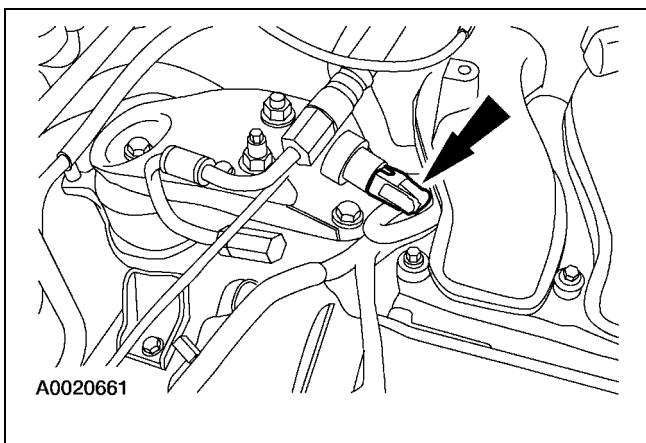
5. Install the vapor management valve (VMV) vacuum hose.



6. Connect the three vacuum hoses on the back of the upper intake manifold.

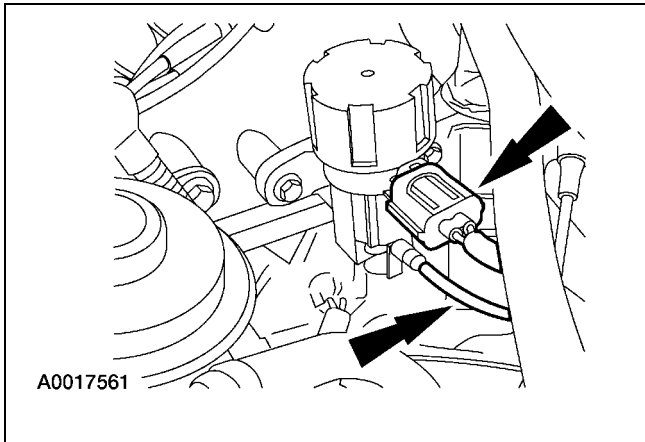
1. Connect the chassis vacuum hose.
2. Connect the engine vacuum hose.
3. Connect the PCV hose.

3. Connect the PSP electrical connector.

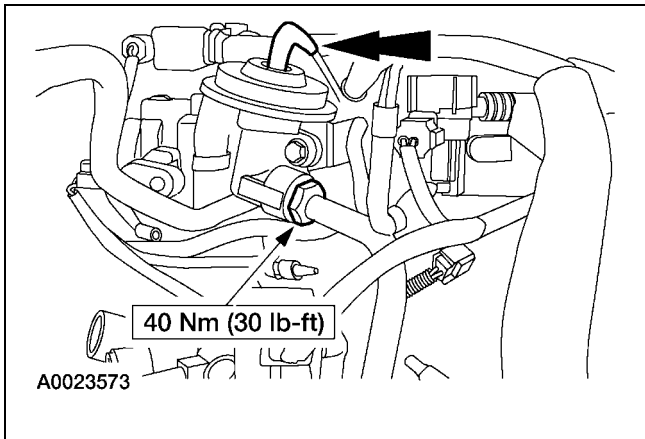


IN-VEHICLE REPAIR (Continued)

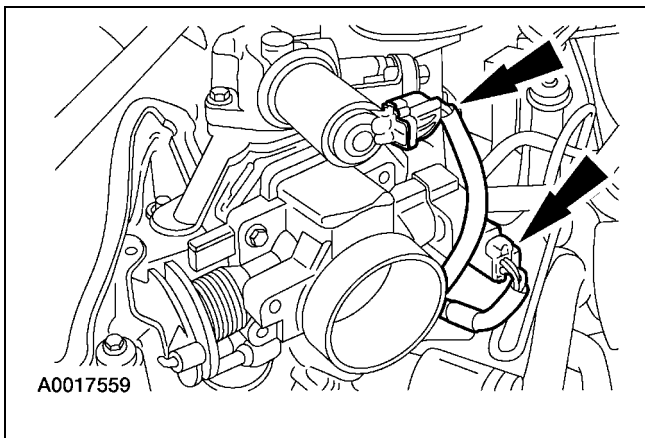
- 7. Connect the EGR vacuum regulator valve electrical connector and the vacuum hose.**



- 8. Install the EGR valve vacuum hose and EGR tube nut.**

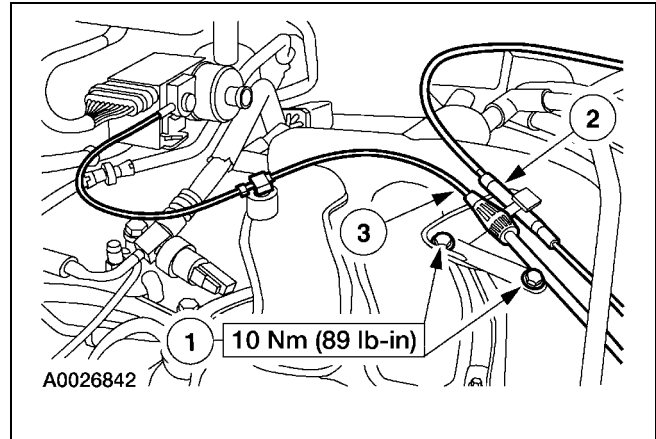


- 9. Connect the TP sensor and IAC electrical connectors.**



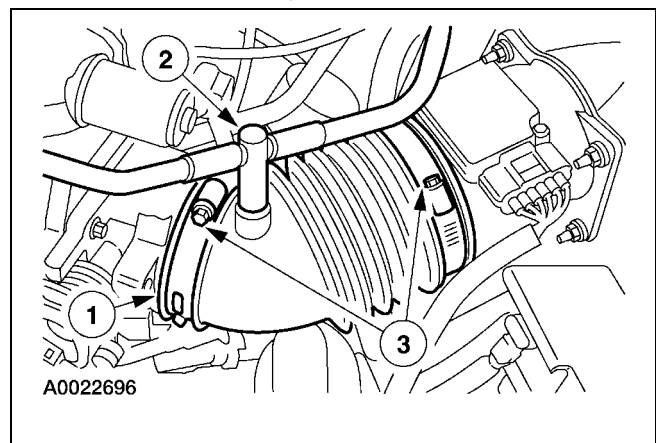
- 10. Connect the throttle cables.**

1. Install the throttle cable bracket bolts.
2. Connect the throttle cable.
3. If equipped, connect the speed control cable.

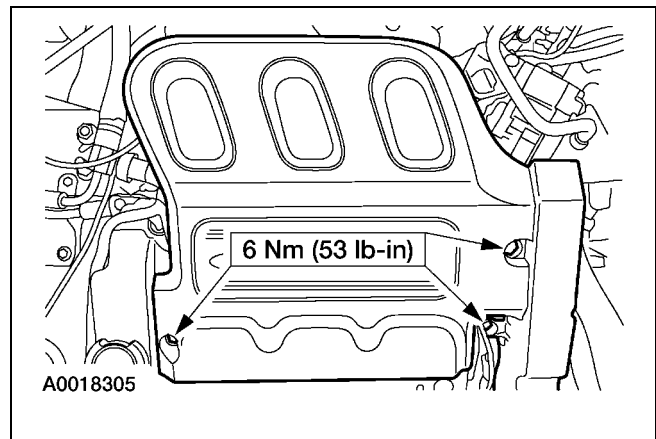


- 11. Install the air cleaner outlet tube.**

1. Position the air cleaner outlet tube.
2. Install the hoses.
3. Install the clamps.



- 12. Install the splash shield.**

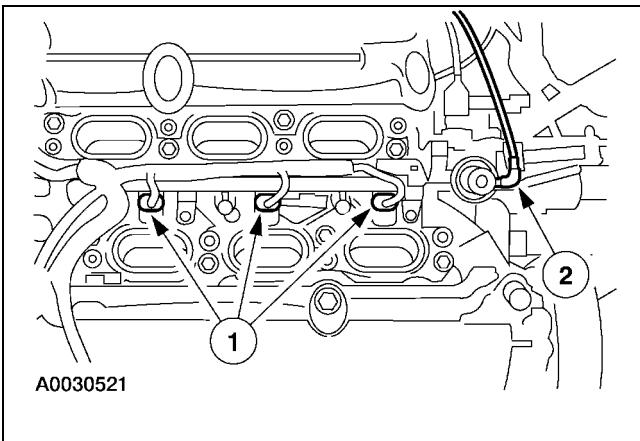


IN-VEHICLE REPAIR

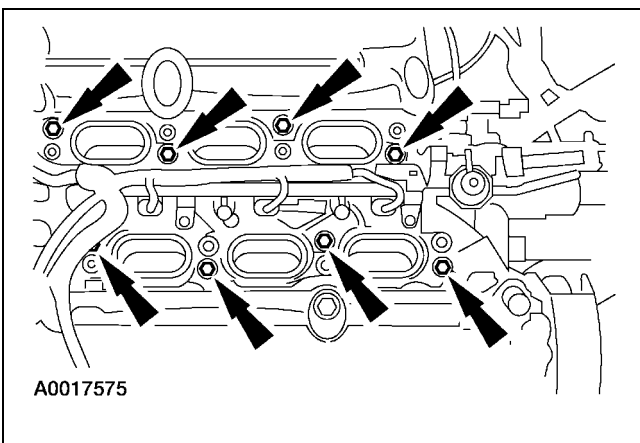
Lower Intake Manifold (21 195 0)

Removal

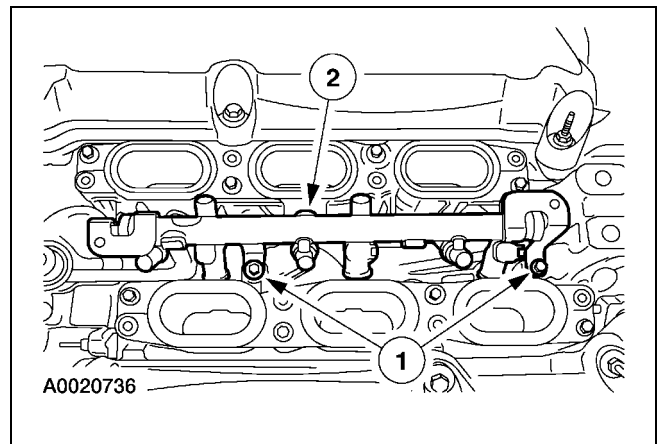
1. Disconnect the fuel line spring lock coupling. For additional information, refer to Section 310-00.
2. Remove the upper intake manifold. For additional information, refer to [Upper Intake Manifold](#) in this section.
3. Disconnect the fuel rail.
 1. Disconnect the six fuel injector electrical connectors.
 2. Disconnect the fuel pressure damper vacuum line.



4. Remove the bolts and the lower intake manifold.



5. Remove the fuel rail.
 1. Remove the four bolts.
 2. Carefully separate the lower intake manifold from the fuel rail.



6. Remove the six fuel injectors from the lower intake manifold.
7. Remove and discard the gaskets if damaged.

Installation

1. Install the gaskets in the lower intake manifold.
2. **CAUTION:** Never use silicone grease. It will clog the fuel injectors.

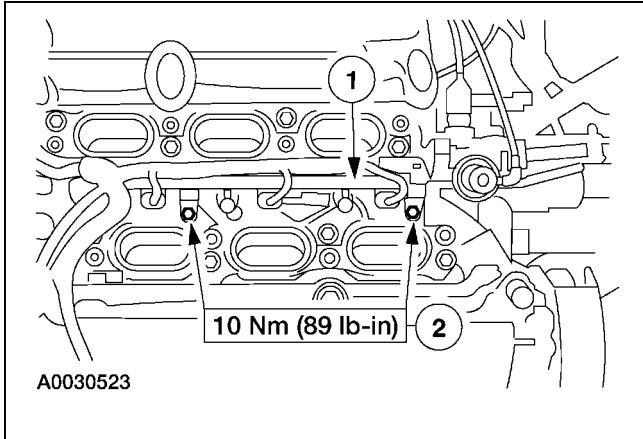
NOTE: Inspect the fuel injector O-ring seals and install new O-ring seals if necessary.

Lubricate the O-ring seals lightly with Super Premium SAE 5W-20 Motor Oil XO-5W20-QSP or equivalent, meeting Ford specification WSS-M2C914-A and install the fuel injectors into the lower intake manifold.

IN-VEHICLE REPAIR (Continued)

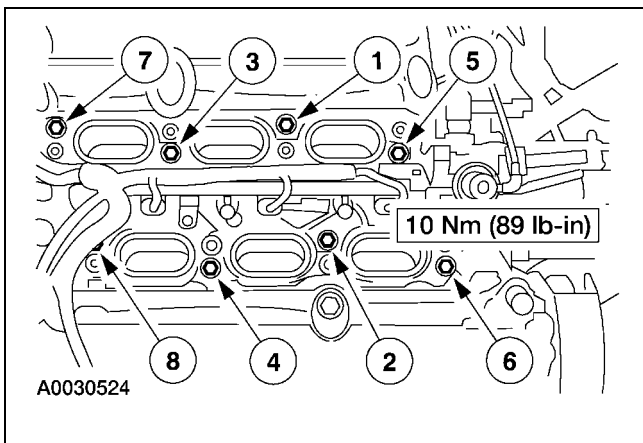
3. Install the fuel rail.

1. Position the fuel rail.
2. Install the four bolts.



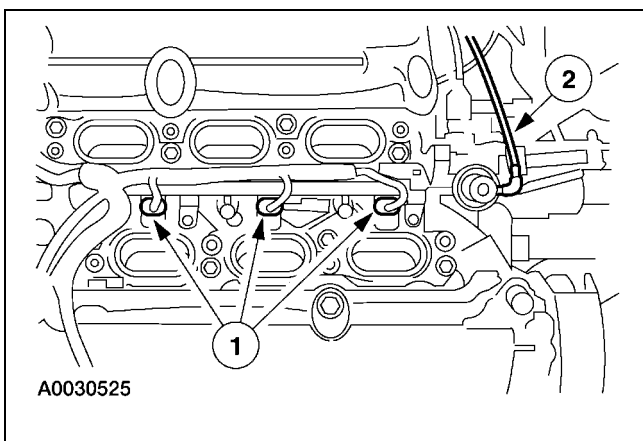
7. Connect the fuel line spring lock coupling. For additional information, refer to Section 310-00.

4. Install the lower intake manifold assembly and tighten the bolts in the sequence shown.



5. Connect the fuel rail.

1. Connect the six fuel injectors.
2. Connect the fuel pressure damper vacuum line.



6. Install the upper intake manifold. For additional information, refer to [Upper Intake Manifold](#) in this section.