

DESCRIPTION AND OPERATION

ENGINE

Engine Component View

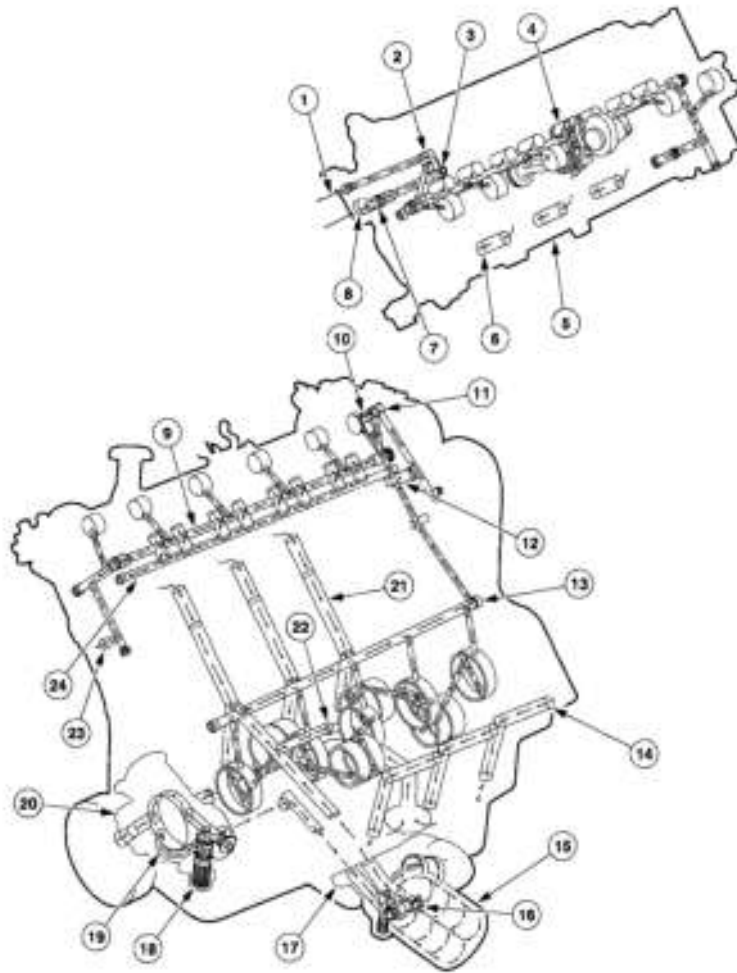
The concept of modularity allows engine designs to share commonization between concepts and engine hardware. The four modules are the:

- intake module
- cylinder head module (RH)
- cylinder head module (LH)
- lower engine module

The modular engine concept supports efficiencies during repairs by allowing the removal and installation of these modules. While not all in-vehicle repairs can take advantage of the modular concept, most out-of-vehicle repairs benefit in reduction of time and labor needed to repair the engine.

The basic engine components consist of:

- single overhead camshafts (6250)
- two valves per cylinder
- sequential multiport fuel injection (SFI)
- aluminum cylinder heads (6049)
- cast iron, 90-degree V- cylinder block (6010)
- individual ignition coils (12029) for each spark plug
- composite-material intake manifold (9424) with noise insulator
- large-bore throttle body (9E926)

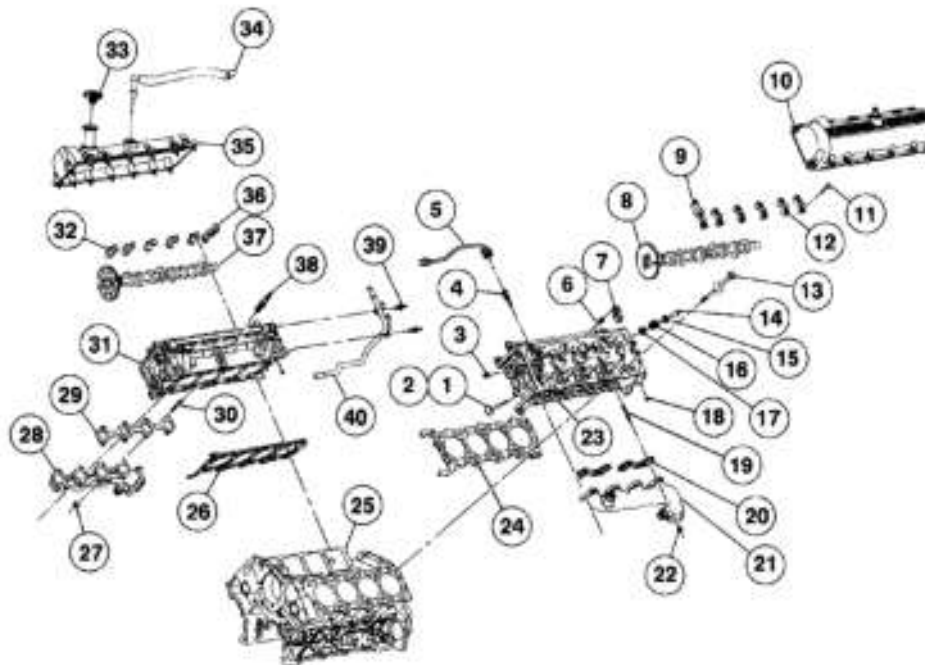


Item	Part Number	Description
1	---	To hydraulic chain tensioner
2	---	Head gallery oil reservoir
3	---	Orifice and strainer
4	---	Metered oil travels through tappet and rocker arm and is splashed onto the cam lobe, roller bearings in rocker arm, and valve tip. Valve stem is lubricated by metered leakage past the lip of the stem seal.
5	6049	LH cylinder head
6	---	Oil drain to sump
7	---	Flare probe access
8	---	From the left bank of the cylinder block
9	---	Tappet and cam bearing feed gallery (reduced pressure)
10	---	Orifice and strainer
11	---	Head gallery oil reservoir

Item	Part Number	Description
12	---	Main probe access
13	---	Primary main gallery pressure (not restricted)
14	---	Oil drain to sump
15	6714	Oil by-pass filter
16	9278	Oil pressure switch
17	6881	Oil filter adapter
18	---	Oil pump integral relief valve (part of 6621)
19	---	By-pass
20	6621	Oil pump
21	---	Oil drain to sump
22	---	To LH cylinder head
23	---	To hydraulic chain tensioner. Chain lubrication is metered through the tensioner.
24	---	Tappet vent gallery (open to crankcase)

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Fig. 1: Exploded View Of Engine Lubrication System & Components
 Courtesy of FORD MOTOR CO.



Item	Part Number	Description
1	6505	Exhaust valve (8 req'd)
2	6507	Intake valve (8 req'd)
3	87838	Pipe plug (6 req'd)
4	6G004	Cylinder head temperature sensor
5	14B102	Cylinder head temperature sensor jumper harness
6	6C501	Valve tappet (16 req'd)
7	6529	Rocker arm (16 req'd)

Item	Part Number	Description
8	6C255	Camshaft — LH
9	6B284	Camshaft bearing cap — Front LH
10	6A505	Valve cover — LH
11	N807834	Bolt (26 req'd)
12	6B280	Camshaft bearing cap — LH (5 req'd)
13	6065	Head bolt (20 req'd)
14	6518	Valve key (32 req'd)

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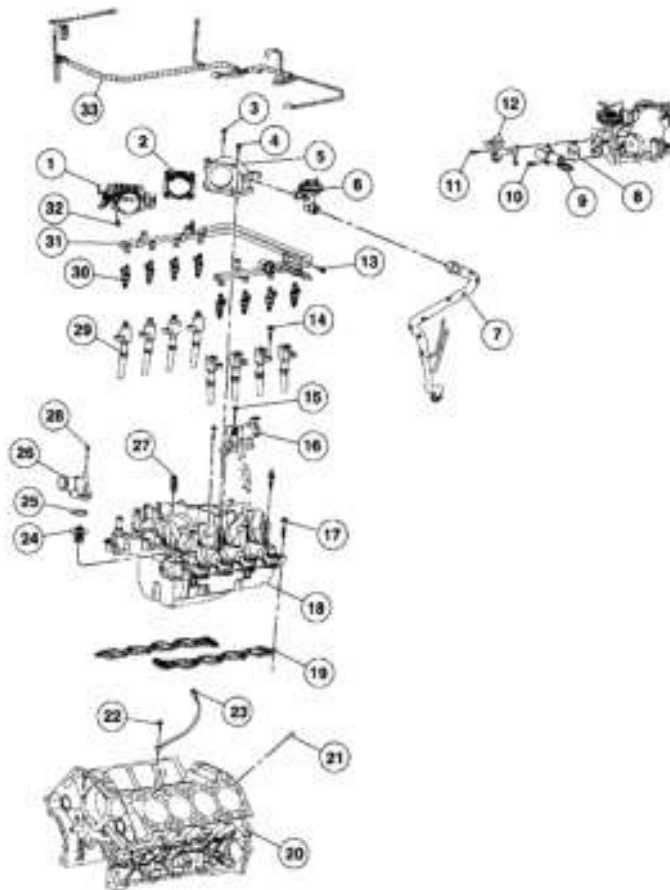
Fig. 2: Exploded View Of 5.4L Engine - Upper End Components (1 Of 2)
 Courtesy of FORD MOTOR CO.

Item	Part Number	Description
15	6514	Valve spring retainer (16 req'd)
16	6513	Valve spring (16 req'd)
17	6A517	Valve stem seal (16 req'd)
18	87836	Pipe plug (2 req'd)
19	N811313	Stud (8 req'd)
20	9Y431	Exhaust manifold gasket — Rear LH
21	9431	Exhaust manifold — LH
22	W701706	Nut (8 req'd)
23	6050	Cylinder head — LH
24	6083	Cylinder head gasket — LH
25	6010	Cylinder block
26	6051	Cylinder head gasket — RH
27	W701706	Nut (8 req'd)

Item	Part Number	Description
28	9430	Exhaust manifold — RH
29	9448	Exhaust manifold gasket — RH
30	W701681	Stud (8 req'd)
31	6049	Cylinder head — RH
32	6B280	Front camshaft bearing cap (5 req'd)
33	6766	Oil fill cap
34	6C342	Crankcase ventilation tube
35	6582	Valve cover — RH
36	6B284	Camshaft bearing cap — RH
37	6251	Camshaft — RH
38	12405	Spark plug (8 req'd)
39	N811415	Bolt (2 req'd)
40	18663	Water outlet tube

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Fig. 3: Exploded View Of 5.4L Engine - Upper End Components (2 Of 2)
 Courtesy of FORD MOTOR CO.

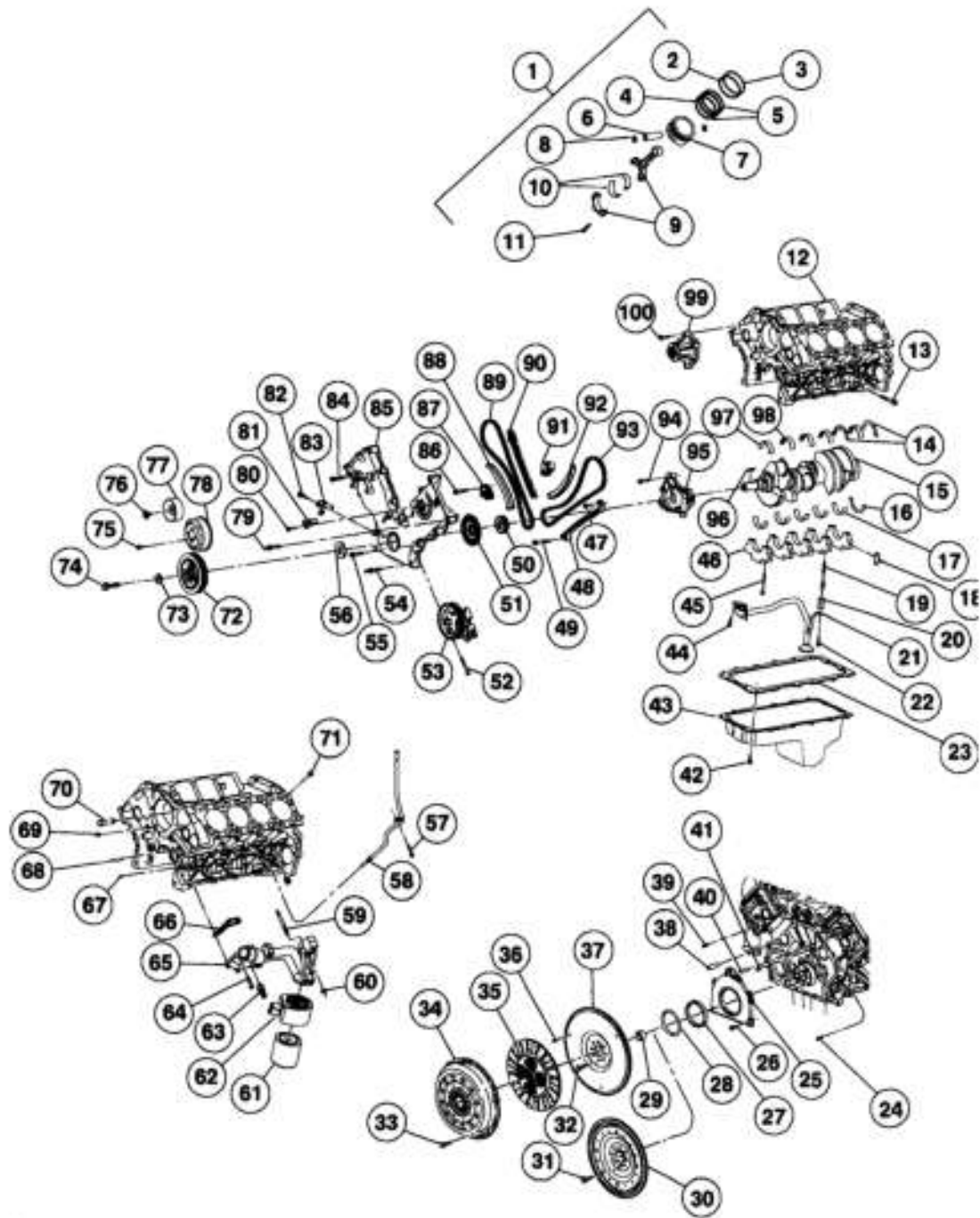


Item	Part Number	Description
1	9E926	Throttle body
2	9E930	Throttle body gasket
3	N808598	Bolt
4	N808429	Bolt (3 req'd)
5	9A589	Throttle body adapter
6	9D860	Exhaust gas recirculation valve
7	9D477	Exhaust gas recirculation valve to exhaust manifold tube
8	9F670	Idle air control valve gasket
9	9F715	Idle air control valve
10	N806154	Bolt (2 req'd)
11	N807309	Bolt (2 req'd)
12	95429	Engine vacuum regulator valve
13	N804394	Bolt (4 req'd)
14	N806500	Bolt (5 req'd)
15	N807309	Bolt (2 req'd)
16	9J433	Differential pressure EGR sensor

Item	Part Number	Description
17	N808130	Bolt (9 req'd)
18	9424	Intake manifold
19	9439	Intake manifold gasket (2 req'd)
20	8010	Cylinder block
21	W704689	Hollow dowel (4 req'd)
22	W900225	Bolt
23	12A699	Knock sensor
24	8575	Thermostat
25	N806807	O-ring seal
26	8594	Water outlet housing
27	15884	Water temperature sensor
28	N806178	Bolt (2 req'd)
29	12A366	Ignition coil (8 req'd)
30	9F593	Fuel injector (8 req'd)
31	9F792	Fuel injection supply manifold
32	N806521	Bolt (4 req'd)
33	9J494	Vacuum harness

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Fig. 4: Exploded View Of 5.4L Engine Induction System Components
 Courtesy of FORD MOTOR CO.



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Fig. 5: Exploded View Of 5.4L Engine - Lower and Front End Components (1 Of 3)
Courtesy of FORD MOTOR CO.

Item	Part Number	Description
1	6100	Piston and rod assembly (8 req'd)
2	6152	Compression ring, lower (8 req'd)
3	6150	Compression ring, upper (8 req'd)
4	6161	Oil control ring, center (8 req'd)
5	6159	Oil control ring, outer (16 req'd)
6	6135	Piston pin (8 req'd)
7	6110	Piston (8 req'd)
8	6140	Piston pin retainer clip (16 req'd)
9	6200	Connecting rod assembly
10	6211	Connecting rod bearing (16 req'd)
11	6214	Bolt (16 req'd)
12	6010	Cylinder block
13	6C357	Side bolt (10 req'd)
14	6A431	Upper crankshaft thrust washer (2 req'd)
15	6303	Crankshaft
16	6K302	Lower crankshaft thrust washer
17	6A338	Lower crankshaft main bearing (5 req'd)
18	6A346	Spacer (10 req'd)
19	6K258	Stud bolt
20	N806180	Spacer
21	6622	Oil pump screen cover and tube
22	N605904	Bolt
23	6710	Oil pan gasket
24	W701516	Dowel (6 req'd)
25	6K318	Crankshaft rear main seal retainer plate
26	N806155	Bolt (6 req'd)
27	6701	Crankshaft rear seal
28	6310	Crankshaft rear main seal retainer
29	7120	Pilot bearing
30	6375	Flexplate (automatic transmission)
31	N806168	Bolt (8 req'd) (automatic transmission)

Item	Part Number	Description
32	N808139	Bolt (8 req'd) (manual transmission)
33	N808969	Bolt (6 req'd) (manual transmission)
34	7563	Pressure plate (manual transmission)
35	7550	Clutch disk (manual transmission)
36	7K578	Dowel (3 req'd) (manual transmission)
37	6375	Flywheel (manual transmission)
38	N807198	Hollow dowel (2 req'd)
39	87836	Dowel (2 req'd)
40	N806007	Dowel
41	N808315	Pipe plug
42	W701605	Bolt (16 req'd)
43	6675	Oil pan
44	N806155	Bolt (2 req'd)
45	6345	Bolt (9 req'd)
46	6325	Main bearing cap (5 req'd)
47	N605892	Bolt (3 req'd)
48	6B274	Timing chain guide
49	N606527	Bolt
50	6306	Crankshaft sprocket
51	12A227	Ignition pulse wheel
52	N806176	Bolt (3 req'd)
53	3A696	Power steering pump
54	N808529	Stud bolt (2 req'd)
55	N806177	Bolt (5 req'd)
56	6700	Front crankshaft seal
57	N806155	Bolt
58	6K873	Oil level indicator tube
59	N704787	Stud
60	N620482	Nut
61	6714	Oil bypass filter
62	6A642	Oil cooler
63	9278	Oil pressure sensor
64	N806156	Bolt (4 req'd)
65	6884	Oil filter adapter
66	6A636	Oil filter adapter gasket
67	N806007	Dowel (2 req'd)
68	N806040	Dowel (2 req'd)
69	N806435	Pipe plug (2 req'd)
70	18B402	Water outlet tube

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Fig. 6: Exploded View Of 5.4L Engine - Lower and Front End Components (2 Of 3)
 Courtesy of FORD MOTOR CO.

Item	Part Number	Description
71	W704688	Hollow dowel (4 req'd)
72	6316	Crankshaft damper
73	N806865	Washer
74	N806139	Bolt
75	N806282	Bolt (4 req'd)
76	N808102	Bolt
77	19A216	Idle pulley
78	8A258	Water pump pulley
79	N808140	Stud bolt (5 req'd)
80	N806155	Bolt
81	6B288	Camshaft position sensor
82	N806155	Bolt
83	6C315	Crankshaft position sensor
84	N808142	Bolt (3 req'd)
85	6C086	Engine front cover
86	N606543	Bolt (4 req'd)
87	6L266	Timing chain tensioner — RH

Item	Part Number	Description
88	6K255	Timing chain tensioner arm — RH
89	6268	Timing chain — RH
90	6M256	Timing chain guide — RH
91	6M259	Timing chain tensioner — LH
92	6M274	Timing chain tensioner arm — LH
93	6268	Timing chain — LH
94	N806183	Bolt (3 req'd)
95	6621	Oil pump
96	N806201	Woodruff key
97	6W337	Front crankshaft main bearing — Upper
98	6333	Upper crankshaft bearing (4 req'd)
99	8501	Water pump
100	N808794	Bolt (4 req'd)

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**Fig. 7: Exploded View Of 5.4L Engine - Lower and Front End Components (3 Of 3)
Courtesy of FORD MOTOR CO.**