

ENGINE

Engine Mechanical - 3.6L (LFX) - Component Locator - Canyon, Colorado

COMPONENT LOCATOR

DISASSEMBLED VIEWS

Engine Covers and Component Assemblies (1 of 2)

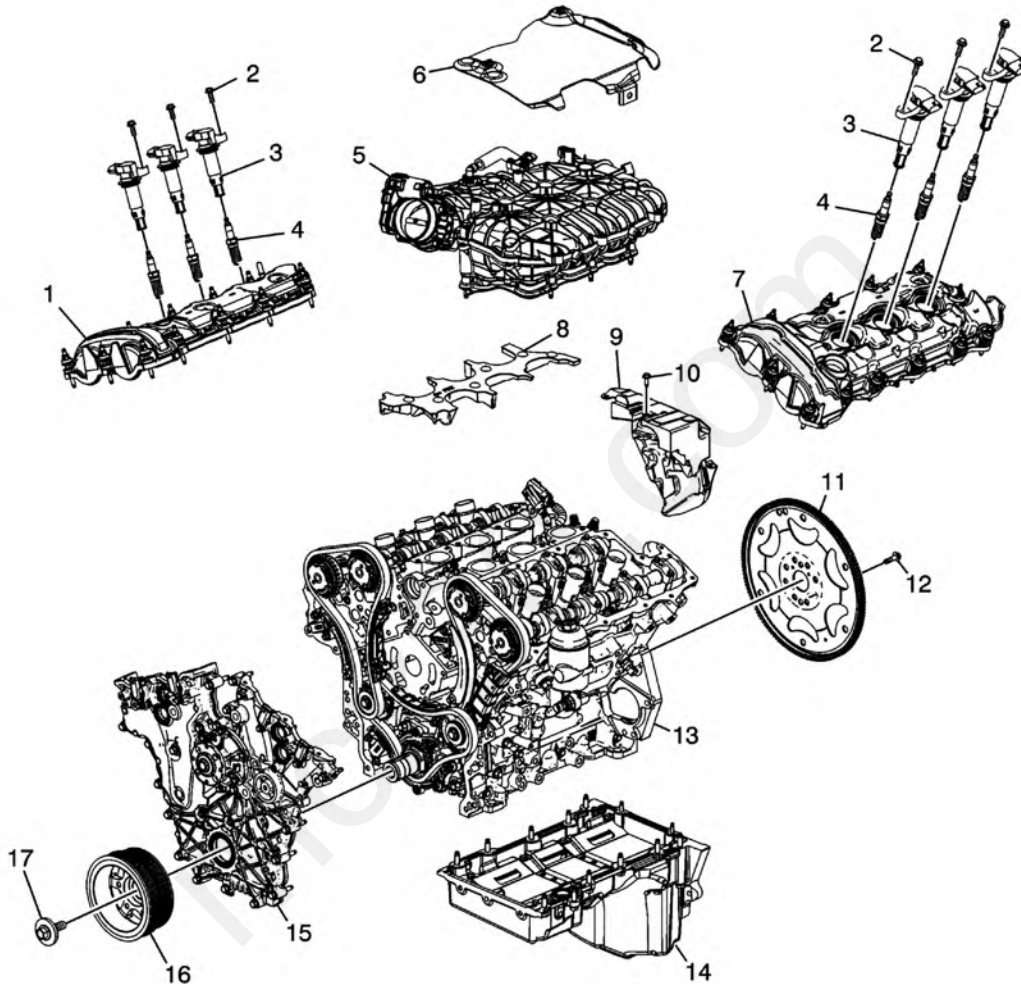


Fig. 1: Engine Covers and Component Assemblies (1 of 2)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Right Camshaft Cover Assembly
2	Ignition Coil Bolt
3	Ignition Coil
4	Spark Plug
5	Intake Manifold Assembly
6	Intake Manifold Cover
7	Left Camshaft Cover Assembly
8	Fuel Rail Noise Shield

Callout	Component Name
9	Fuel Pump Cover
10	Fuel Pump Cover Bolt
11	Engine Flywheel
12	Engine Flywheel Bolt
13	Engine Assembly
14	Oil Pan Assembly
15	Engine Front Cover Assembly
16	Crankshaft Balancer
17	Crankshaft Balancer Bolt

Engine Covers and Component Assemblies (2 of 2)

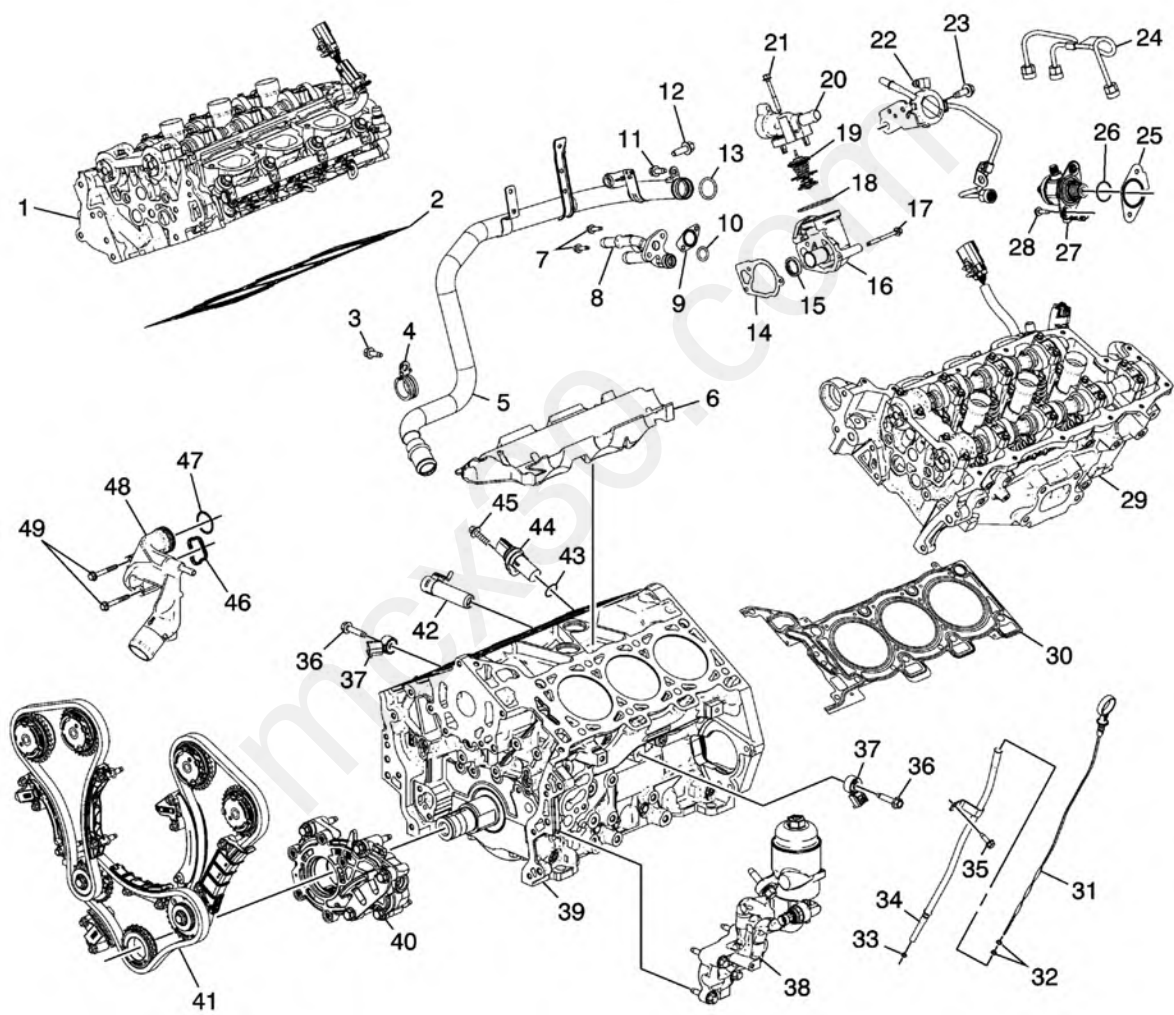


Fig. 2: Engine Covers and Component Assemblies (2 of 2)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Right Cylinder Head Assembly
2	Right Cylinder Head Gasket
3	Coolant Pipe Bracket Bolt - Small
4	Coolant Pipe Clamp

Count	Component Name
5	Coolant Pipe
6	Lower Fuel Rail Noise Shield
7	Water Inlet/Outlet Pipe Bolts
8	Water Inlet/Outlet Pipe
9	Water Inlet/Outlet Pipe Gaskets
10	Water Inlet/Outlet Pipe O-ring
11	Coolant Pipe Bracket Bolt - Small
12	Coolant Pipe Bracket Bolt - Large
13	Coolant Pipe O-ring
14	Engine Cooling Thermostat Gasket
15	Engine Cooling Thermostat Lower Housing Seal
16	Engine Cooling Thermostat Lower Housing
17	Engine Cooling Thermostat Lower Housing Bolt
18	Engine Cooling Thermostat Seal
19	Engine Cooling Thermostat
20	Engine Cooling Thermostat Housing
21	Engine Cooling Thermostat Housing Bolt
22	Fuel Feed Pipe Assembly
23	Fuel Feed Pipe Assembly Bolt
24	Fuel Feed Intermediate Pipe Assembly
25	Fuel Pump Gasket
26	Fuel Pump O-ring Seal
27	Fuel Pump
28	Fuel Pump Bolt
29	Left Cylinder Head Assembly
30	Left Cylinder Head Gasket
31	Oil Level Indicator
32	Oil Level Indicator Handle O-ring
33	Oil Level Indicator Tube O-ring
34	Oil Level Indicator Tube
35	Oil Level Indicator Tube Bolt
36	Knock Sensor Bolt
37	Knock Sensor
38	Oil Filter Adapter Assembly
39	Engine Short Block Assembly
40	Oil Pump Assembly
41	Timing Drive Assembly
42	Engine Coolant Heater Assembly
43	Crankshaft Position Sensor O-ring
44	Crankshaft Position Sensor
45	Crankshaft Position Sensor Bolt
46	Water Outlet Seal
47	Water Outlet O-ring
48	Water Outlet
49	Water Outlet Bolt

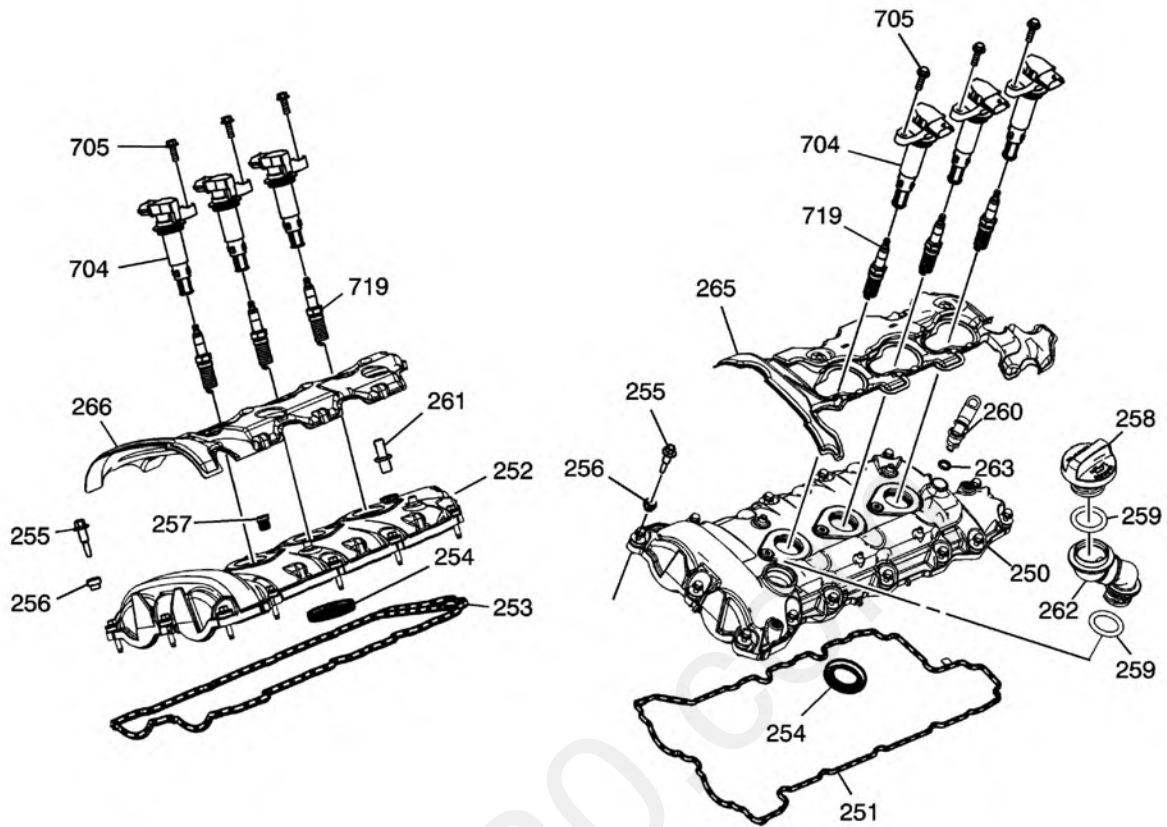


Fig. 3: Camshaft Cover Assembly

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
250	Left Camshaft Cover
251	Left Camshaft Cover Gasket
252	Right Camshaft Cover
253	Right Camshaft Cover Gasket
254	Camshaft Cover Spark Plug Port Seal
255	Camshaft Cover Bolt
256	Camshaft Cover Bolt Insulator
257	Ignition Coil Bolt Thread Insert
258	Oil Fill Cap
259	Oil Fill O-ring
260	Left Camshaft Cover PCV Fitting
261	Right Camshaft Cover PCV Fitting Orifice
262	Oil Fill Tube
263	Left Camshaft Cover PCV Fitting O-ring
265	Left Camshaft Housing Cover Insulator

Callout	Component Name
266	Right Camshaft Housing Cover Insulator
704	Ignition Coil
705	Ignition Coil Bolt
719	Spark Plug

Camshaft Timing Components

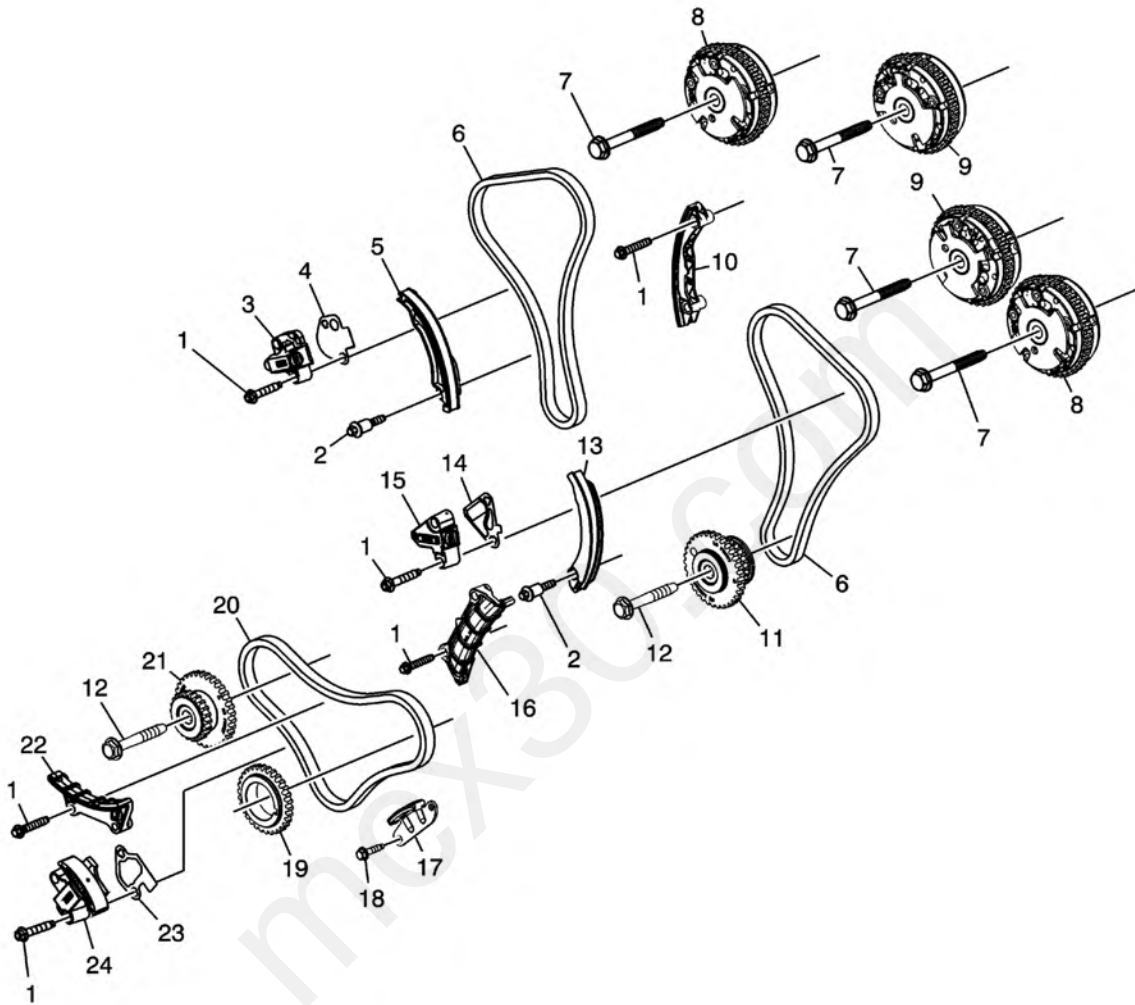


Fig. 4: Camshaft Timing Components
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Right Secondary Timing Chain Tensioner Bolt
2	Right Secondary Timing Chain Guide Bolt
3	Right Secondary Timing Chain Tensioner
4	Right Timing Chain Housing Gasket
5	Right Secondary Timing Chain Guide
6	Secondary Camshaft Intermediate Drive Chain
7	Camshaft Position Actuator Bolt
8	Exhaust Camshaft Position Actuator
9	Intake Camshaft Position Actuator

Callout	Component Name
10	Right Pivot Arm Timing Chain Guide
11	Left Camshaft Timing Chain Idler Sprocket
12	Camshaft Intermediate Drive Shaft Sprocket Bolt
13	Left Pivot Arm Timing Chain Guide
14	Left Timing Chain Housing Gasket
15	Left Secondary Timing Chain Tensioner
16	Left Secondary Timing Chain Guide
17	Lower Primary Timing Chain Guide
18	Lower Primary Timing Chain Guide Bolt
19	Crankshaft Sprocket
20	Primary Timing Chain
21	Right Camshaft Timing Chain Idler Sprocket
22	Upper Primary Timing Chain Guide
23	Timing Chain Housing Gasket
24	Camshaft Intermediate Drive Chain Tensioner

Intake Manifold

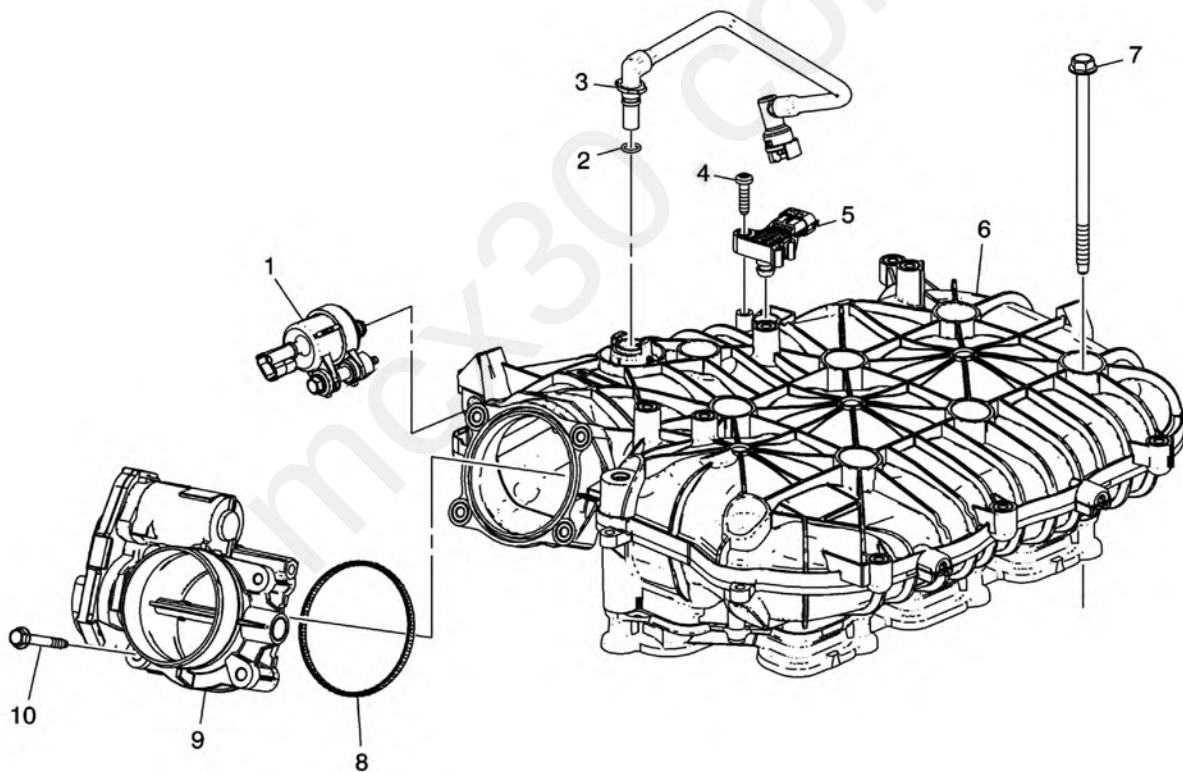


Fig. 5: Intake Manifold Components
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	EVAP Solenoid
2	PCV Tube O-ring Seal
3	PCV Tube
4	MAP Sensor Bolt
5	MAP Sensor

Callout	Component Name
6	Upper Intake Manifold
7	Upper Intake Manifold Bolt
8	Throttle Body Gasket
9	Throttle Body
10	Throttle Body Bolt

Fuel Rail

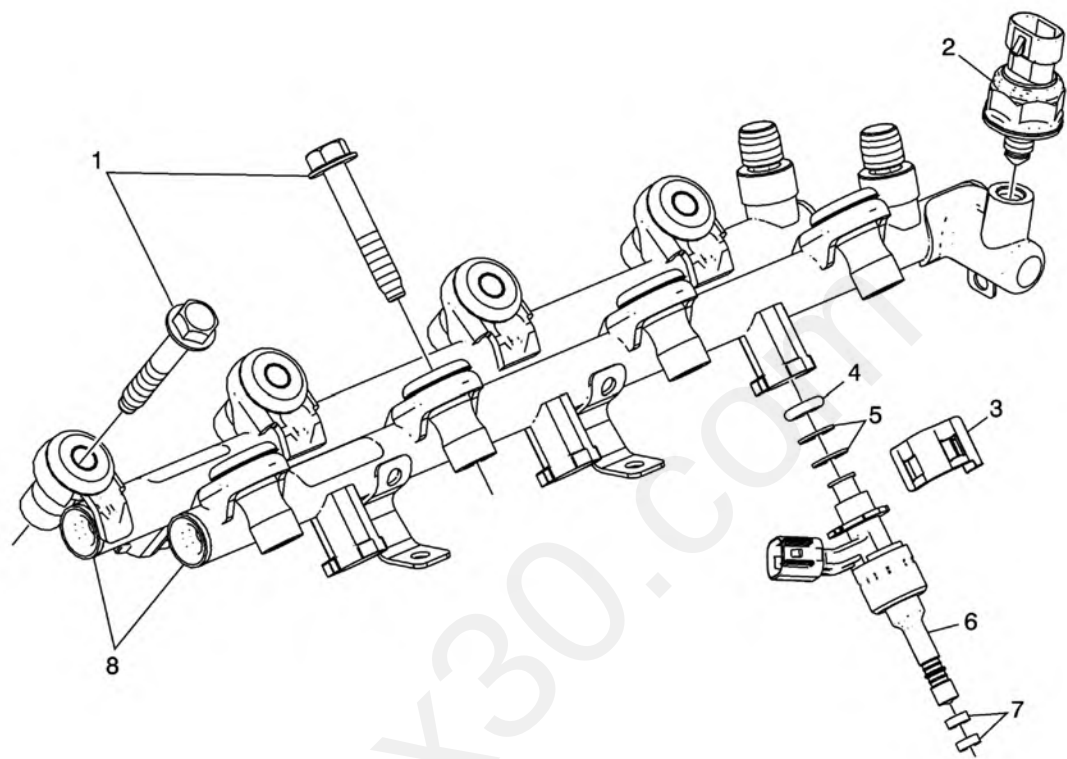


Fig. 6: Identifying Fuel Rail Components
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Fuel Rail Bolt
2	Fuel Pressure Sensor
3	Fuel Injector Retainer
4	Fuel Injector O-ring Seal
5	Fuel Injector Spacer
6	Fuel Injector
7	Fuel Injector Teflon Seal
8	Fuel Rail

Cylinder Head Assemblies

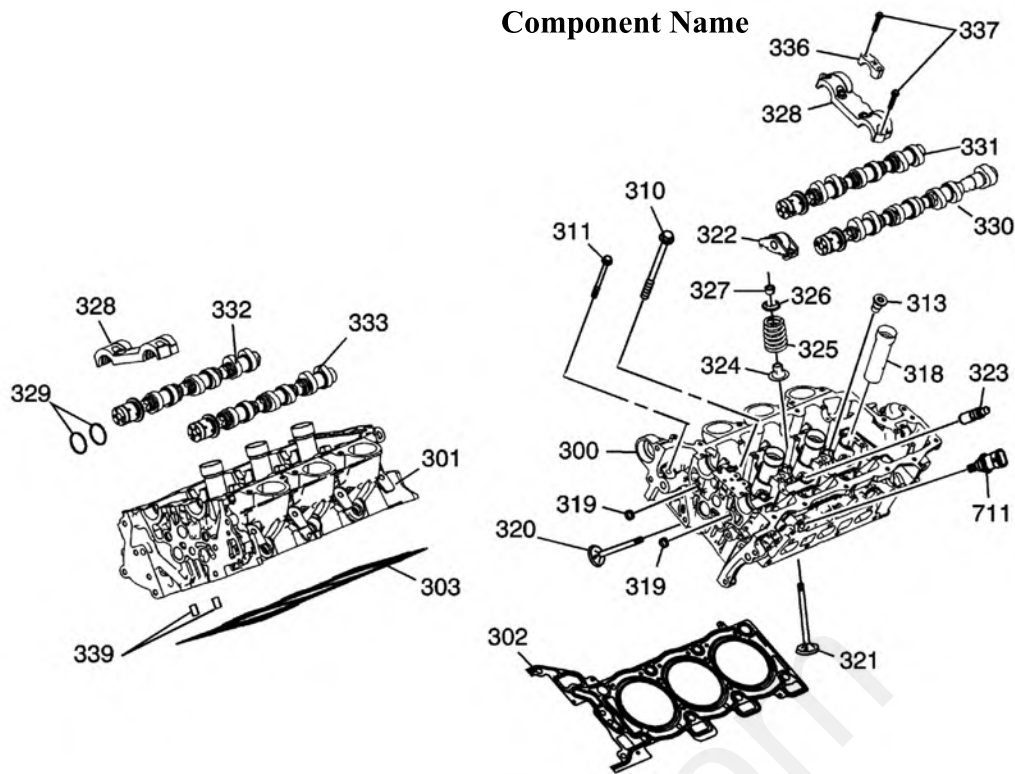


Fig. 7: Cylinder Head Assemblies

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
300	Left Cylinder Head
301	Right Cylinder Head
302	Left Cylinder Head Gasket
303	Right Cylinder Head Gasket
310	Cylinder Head Bolt
311	Cylinder Head Front Bolt
313	Cylinder Head Water Jacket Hole Threaded Plug
318	Spark Plug Wire Sleeve
319	Cylinder Head Oil Gallery Expansion Plug - 14 mm
320	Exhaust Valve
321	Intake Valve
322	Valve Rocker Arm
323	Hydraulic Valve Lash Adjuster
324	Valve Stem Oil Seal
325	Valve Spring
326	Valve Spring Cap
327	Valve Stem Key
328	Cylinder Head Camshaft Front Thrust Bearing Cap
328	Cylinder Head Camshaft Front Thrust Bearing Cap
329	Camshaft Oil Seal Ring
330	Left Exhaust Camshaft
331	Left Intake Camshaft
332	Right Intake Camshaft

Callout	Component Name
333	Right Exhaust Camshaft
336	Cylinder Head Camshaft Cap - Intermediate
337	Cylinder Head Camshaft Cap Bolt
339	Cylinder Head Oil Gallery Check Valve
711	Engine Coolant Temperature Sensor

Engine Front Cover

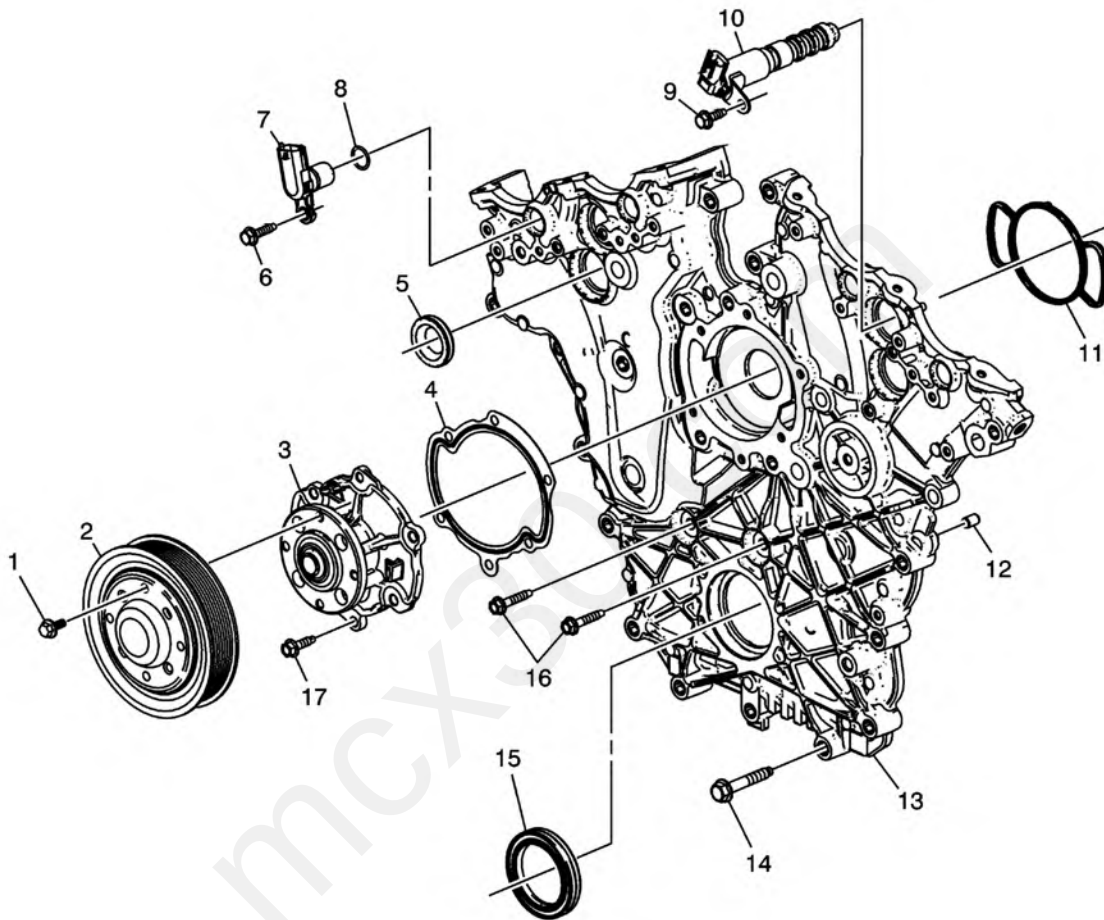


Fig. 8: View Of Engine Front Cover Components
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Water Pump Pulley Bolt
2	Water Pump Pulley
3	Water Pump Assembly
4	Water Pump Pulley Gasket
5	Camshaft Position Actuator Solenoid Valve Seal
6	Camshaft Position Sensor Bolt
7	Camshaft Position Sensor
8	Camshaft Position Sensor O-ring Seal

Callout	Component Name
9	Camshaft Position Actuator Solenoid Valve Bolt
10	Camshaft Position Actuator Solenoid Valve
11	Engine Front Cover Gasket
12	Engine Front Cover Locating Pin
13	Engine Front Cover
14	Engine Front Cover Bolt
15	Engine Front Cover Seal
16	Engine Front Cover Bolt
17	Water Pump Bolt

Oil Pump

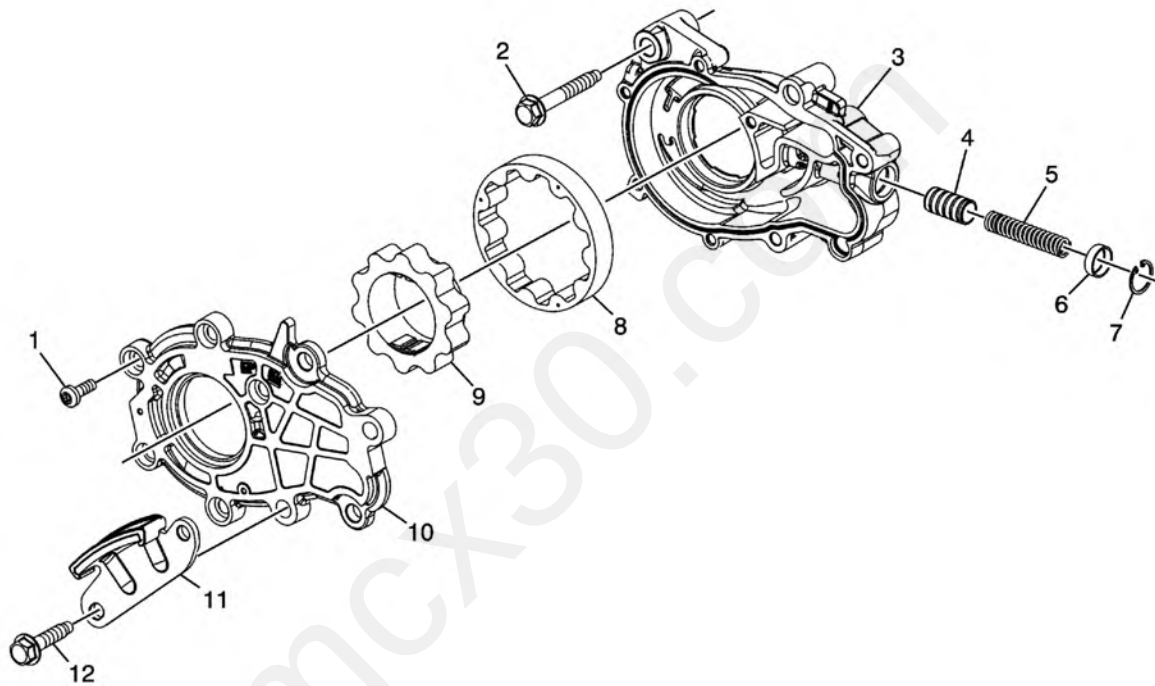


Fig. 9: Oil Pump Components
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Oil Pump Cover Bolt
2	Oil Pump Bolt
3	Oil Pump Housing
4	Oil Pressure Relief Valve
5	Oil Pressure Relief Valve Spring
6	Oil Pressure Relief Valve Bore Plug
7	Oil Pressure Relief Valve Bore Plug Retainer Clip
8	Oil Pump Driven Gear
9	Oil Pump Drive Gear
10	Oil Pump Cover
11	Lower Primary Timing Chain Guide

Callout	Component Name
12	Lower Primary Timing Chain Guide Bolt

Engine Block Assembly

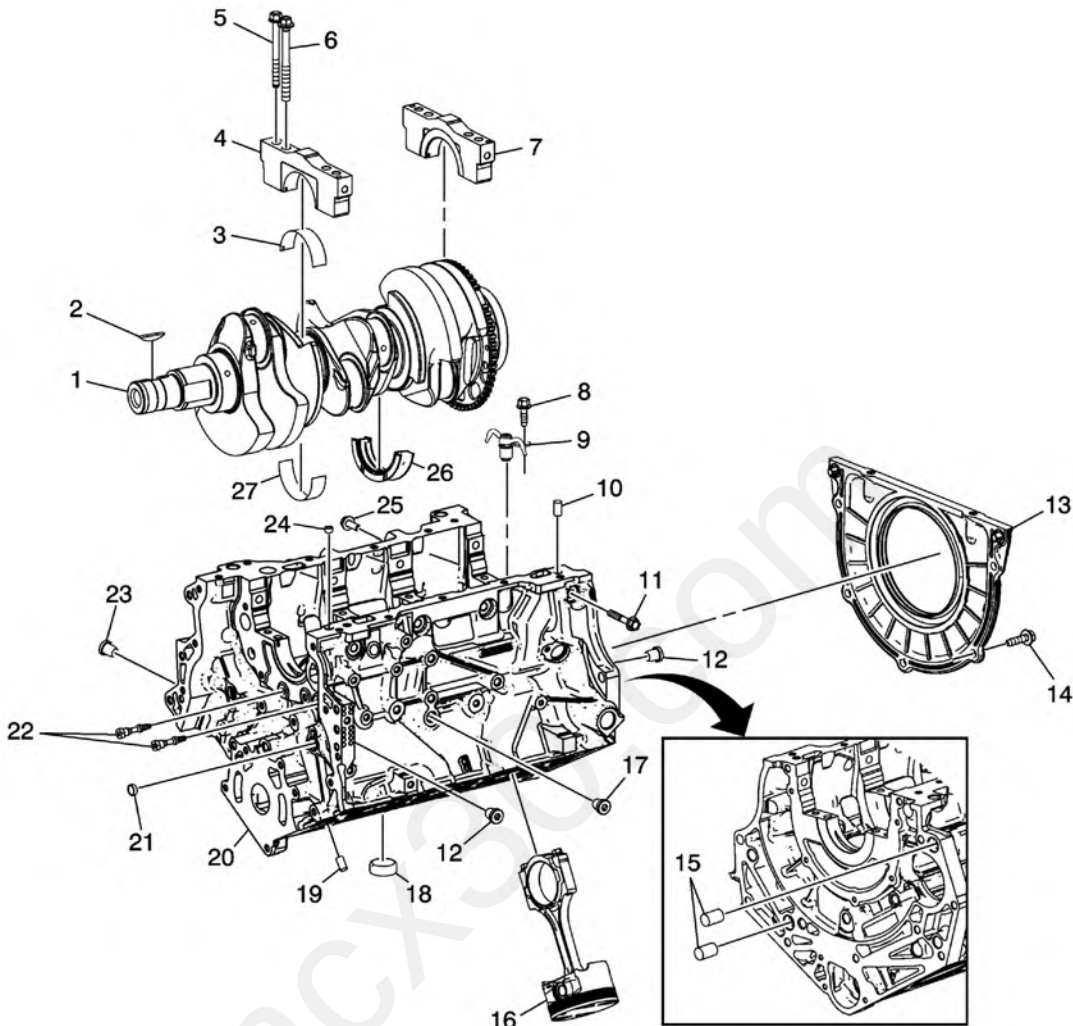


Fig. 10: Identifying Engine Block Assembly Components
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Crankshaft
2	Crankshaft Key
3	Crankshaft Lower Bearing
4	Crankshaft Bearing Cap
5	Crankshaft Bearing Cap Outboard Bolt
6	Crankshaft Bearing Cap Inboard Bolt
7	Crankshaft Bearing Thrust Cap
8	Piston Oil Nozzle Bolt
9	Piston Oil Nozzle
10	Oil Pan Locating Pin
11	Crankshaft Bearing Cap Side Bolt - Long
12	Engine Block Oil Gallery Threaded Plug - 14 mm

Count	Component Name
13	Crankshaft Rear Oil Seal Housing Assembly
14	Crankshaft Rear Oil Seal Housing Assembly Bolt
15	Transaxle Locating Pin
16	Piston and Connecting Rod Assembly
17	Engine Block Coolant Drain Threaded Plug - 14 mm
18	Engine Block Core Coolant Expansion Plug - 34.3 mm
19	Cylinder Head Locating Pin
20	Engine Block
21	Engine Block Oil Gallery Expansion Plug- 14 mm
22	Engine Front Cover Stud
23	Engine Block Oil Gallery Threaded Plug - 20 mm
24	Engine Block Oil Gallery Expansion Plug - 10 mm
25	Crankshaft Bearing Cap Side Bolt - Short
26	Crankshaft Upper Thrust Bearing #3
27	Crankshaft Upper Bearing

Piston, Rings, Bearing and Connecting Rod

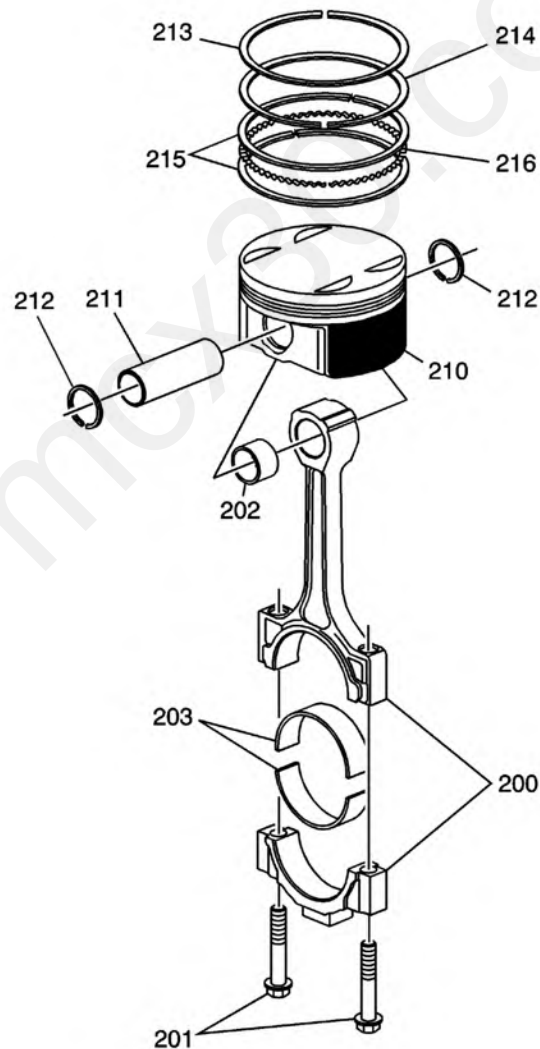


Fig. 11: Piston, Rings, Bearing and Connecting Rod Disassembled View
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
200	Connecting Rod
201	Connecting Rod Bolt
202	Connecting Rod Bushing
203	Connecting Rod Bearing
210	Piston
211	Piston Pin
212	Piston Pin Retainer
213	Piston Upper Compression Ring
214	Piston Lower Compression Ring
215	Piston Oil Control Rail Ring
216	Piston Oil Control Ring Spacer

Oil Pan Assembly

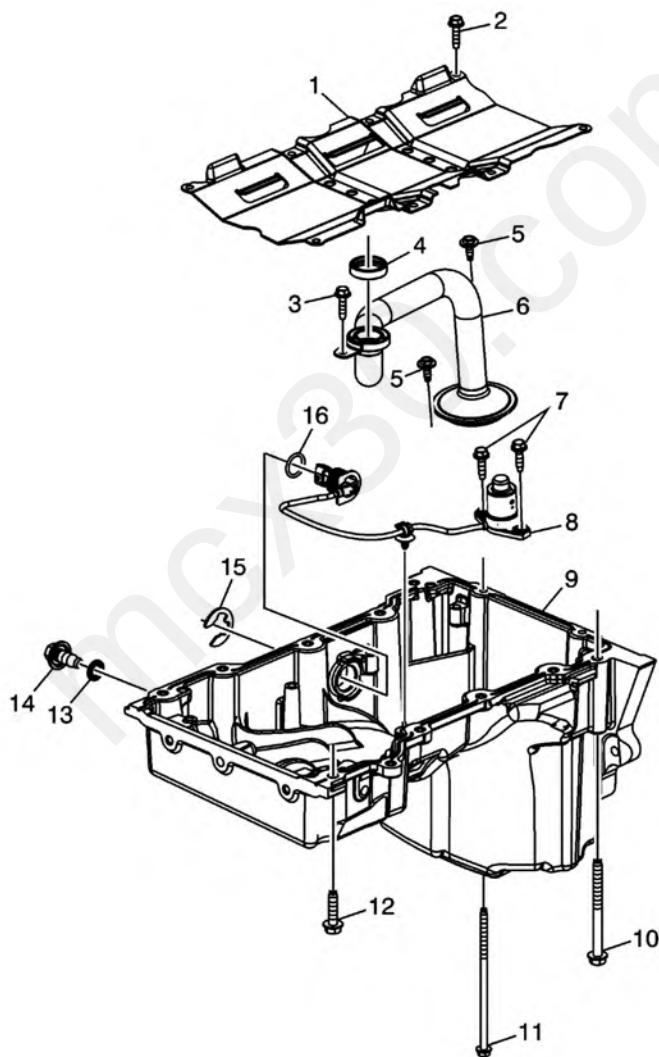


Fig. 12: Oil Pan Assembly
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Oil Pan Baffle Scraper
2	Oil Pan Baffle Scraper Bolt

Callout	Component Name
	Oil Pump Suction Pipe Bolt
4	Oil Pump Suction Pipe Seal
5	Oil Pump Suction Pipe Retaining Bolt
6	Oil Pump Suction Pipe
7	Engine Oil Level Switch Bolt
8	Engine Oil Level Switch
9	Oil Pan
10	Oil Pan Bolt
11	Oil Pan Bolt - Long
12	Oil Pan Bolt - Short
13	Oil Pan Drain Plug
14	Oil Pan Drain Plug Seal
15	Engine Oil Level Switch Clip
16	Engine Oil Level Switch Seal

Oil Filter Adapter

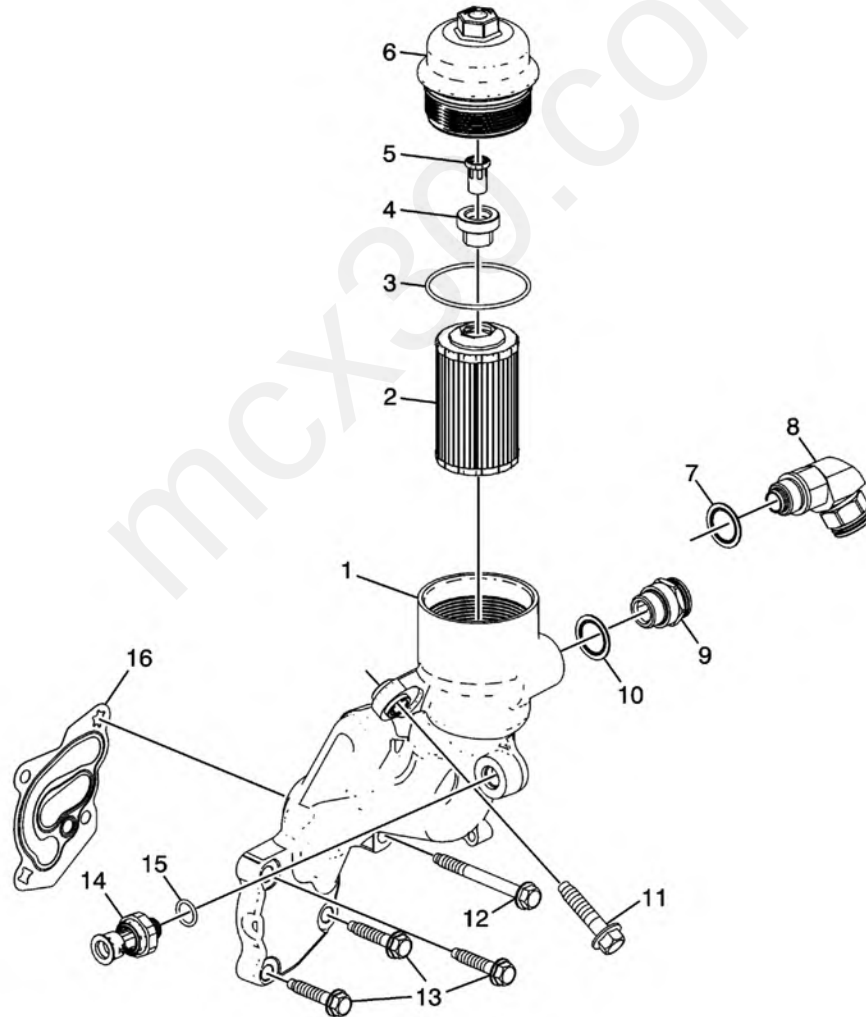


Fig. 13: Oil Filter Adapter

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Oil Filter Adapter
2	Oil Filter
3	Oil Filter Cap O-Ring
4	Oil Filter Bypass Valve Body
5	Oil Filter Bypass Valve
6	Oil Filter Adapter Cap
7	Turbocharger Coolant Feed and Return Pipe Gasket
8	Engine Oil Cooler Fitting
9	Engine Oil Cooler Fitting
10	Turbocharger Coolant Feed and Return Pipe Gasket
11	Oil Filter Adapter Bolt M10 x 46
12	Oil Filter Adapter Bolt M8 x 81
13	Oil Filter Adapter Bolt M8 x 41
14	Engine Oil Pressure Sensor
15	Engine Oil Pressure Sensor Seal
16	Oil Filter Adapter Gasket

ENGINE IDENTIFICATION

Vehicle Identification Number

The Vehicle Identification Number (VIN) Derivative is located in two places on the engine and is a nine digit number stamped or laser etched onto the block at the vehicle assembly plant. If reading the identification number the following information can be obtained:

- The first digit identifies the vehicle division.
- The second digit is the model year.
- The third digit identifies the assembly plant.
- The fourth through ninth digits are the last six digits of the Vehicle Identification Number (VIN).

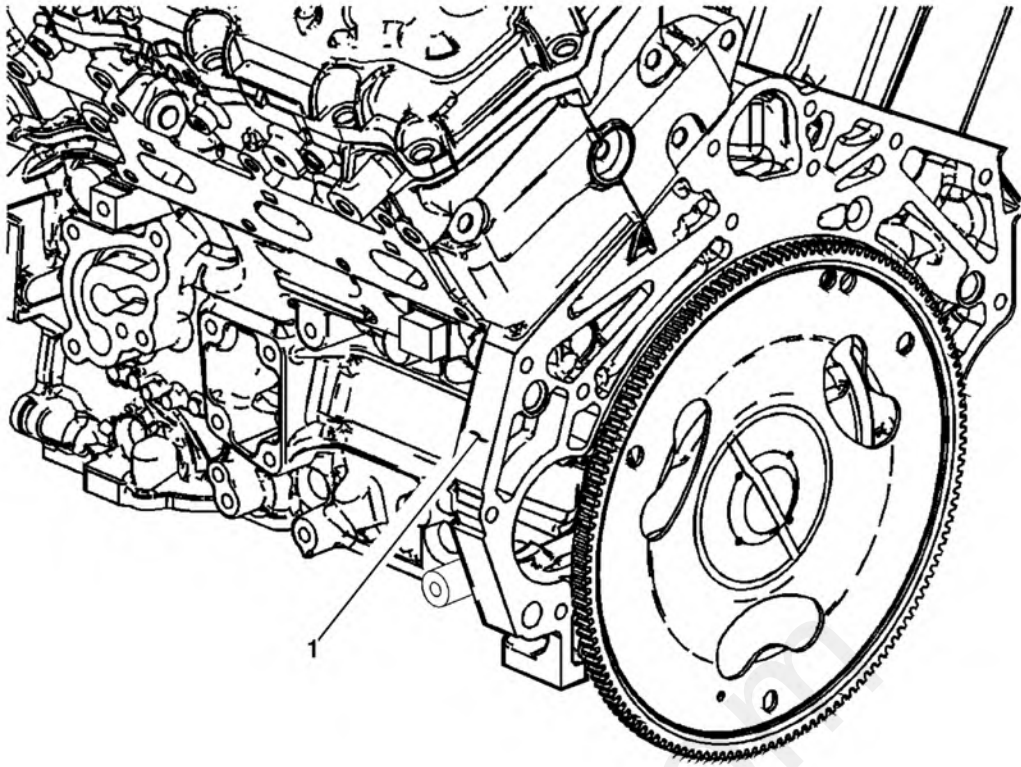


Fig. 14: Locating Engine VIN - Left Rear Side
Courtesy of GENERAL MOTORS COMPANY

The engine block is marked with the VIN on a pad area on the left rear side (1).

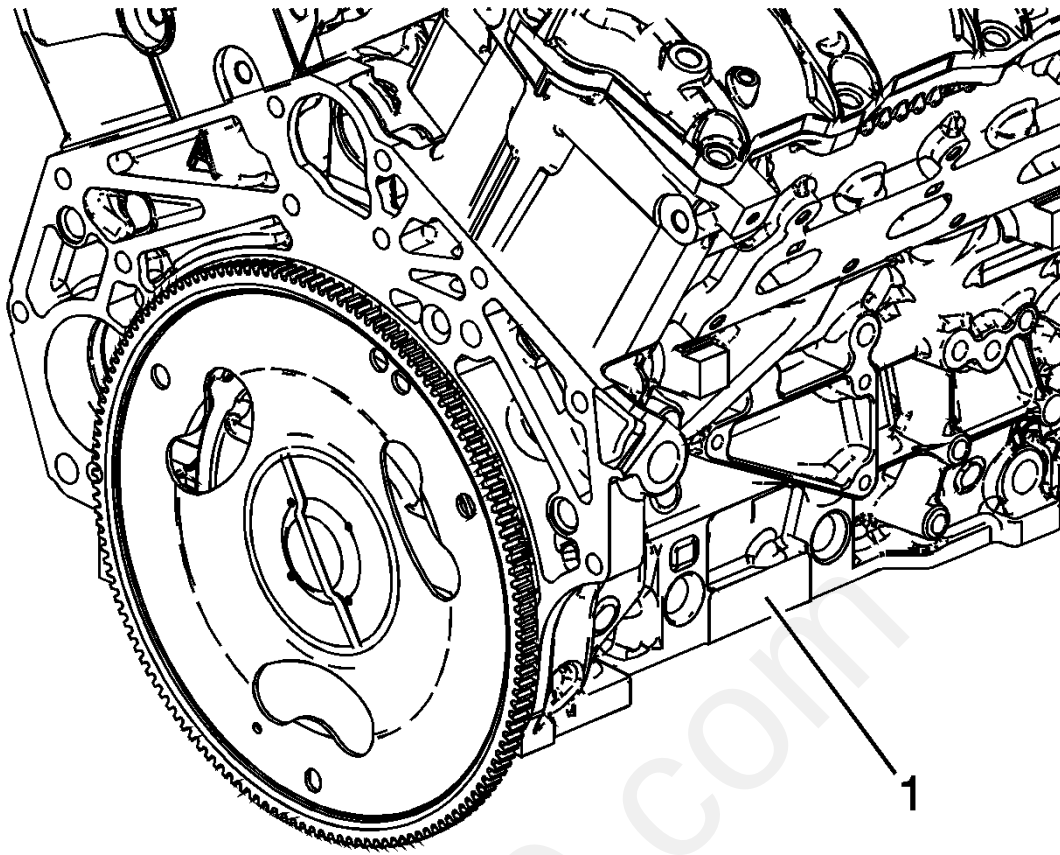


Fig. 15: Locating Vehicle Identification Number (VIN) - Center Lower Right Side
Courtesy of GENERAL MOTORS COMPANY

The engine block is marked with the VIN on a pad area on the center lower right side (1).

Engine Traceability Label

The engine traceability label is located in two places on the engine and consists of the broadcast code, bar code and sequence number. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.

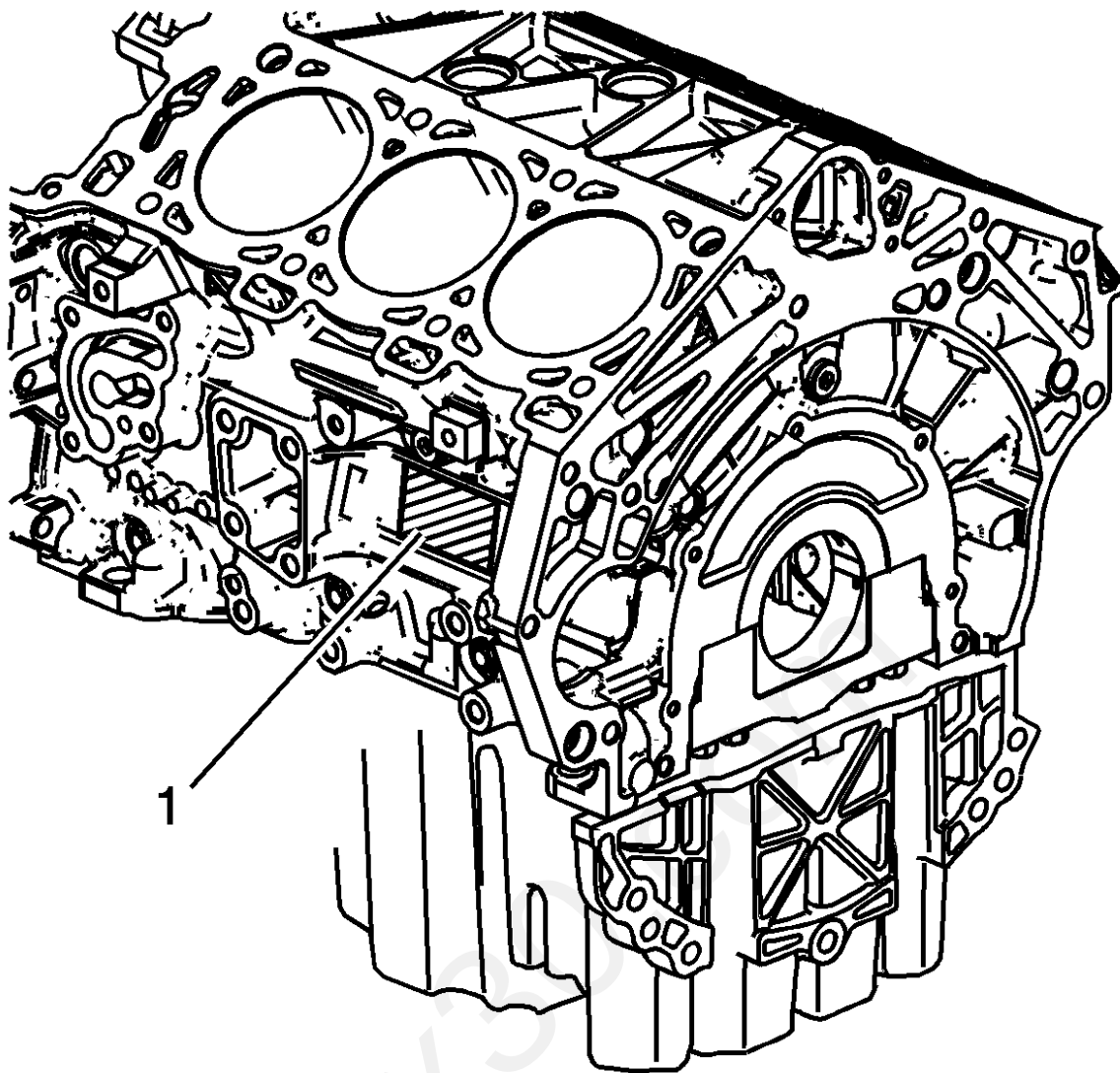


Fig. 16: Locating Left Rear Engine Traceability Label

Courtesy of GENERAL MOTORS COMPANY

One engine traceability label (1) is located on the left rear side of the engine block. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.

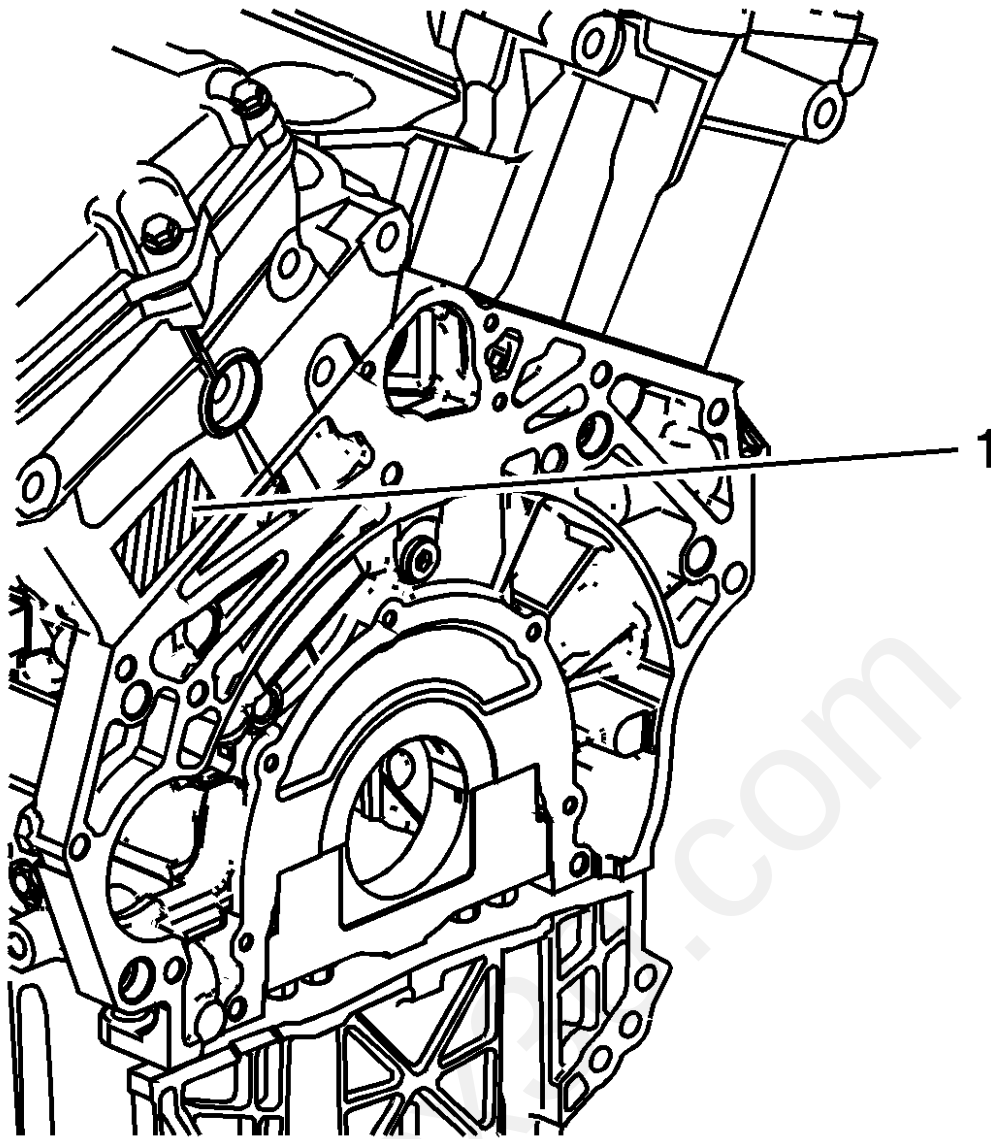


Fig. 17: View Of Engine Traceability Label On Left Cylinder Head

Courtesy of GENERAL MOTORS COMPANY

Another engine traceability label (1) is located on the rear of the left cylinder head. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.

Engine Verification Label

The engine verification label is located in two places on the engine and consists of the broadcast code and bar code. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.

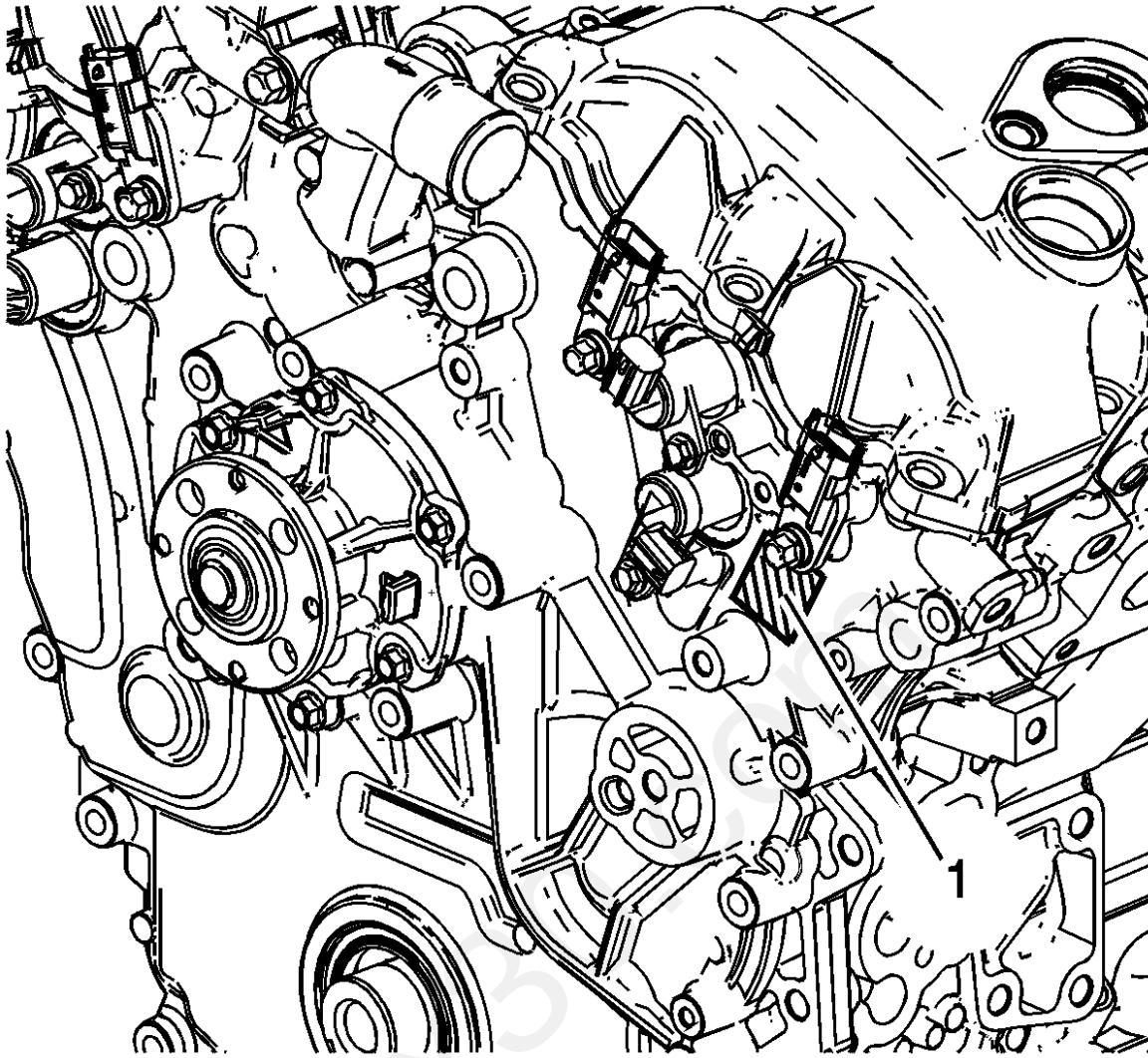


Fig. 18: Locating Left Engine Verification Label
Courtesy of GENERAL MOTORS COMPANY

One engine verification label (1) is located on the left side of the engine front cover below the exhaust camshaft position sensor. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.

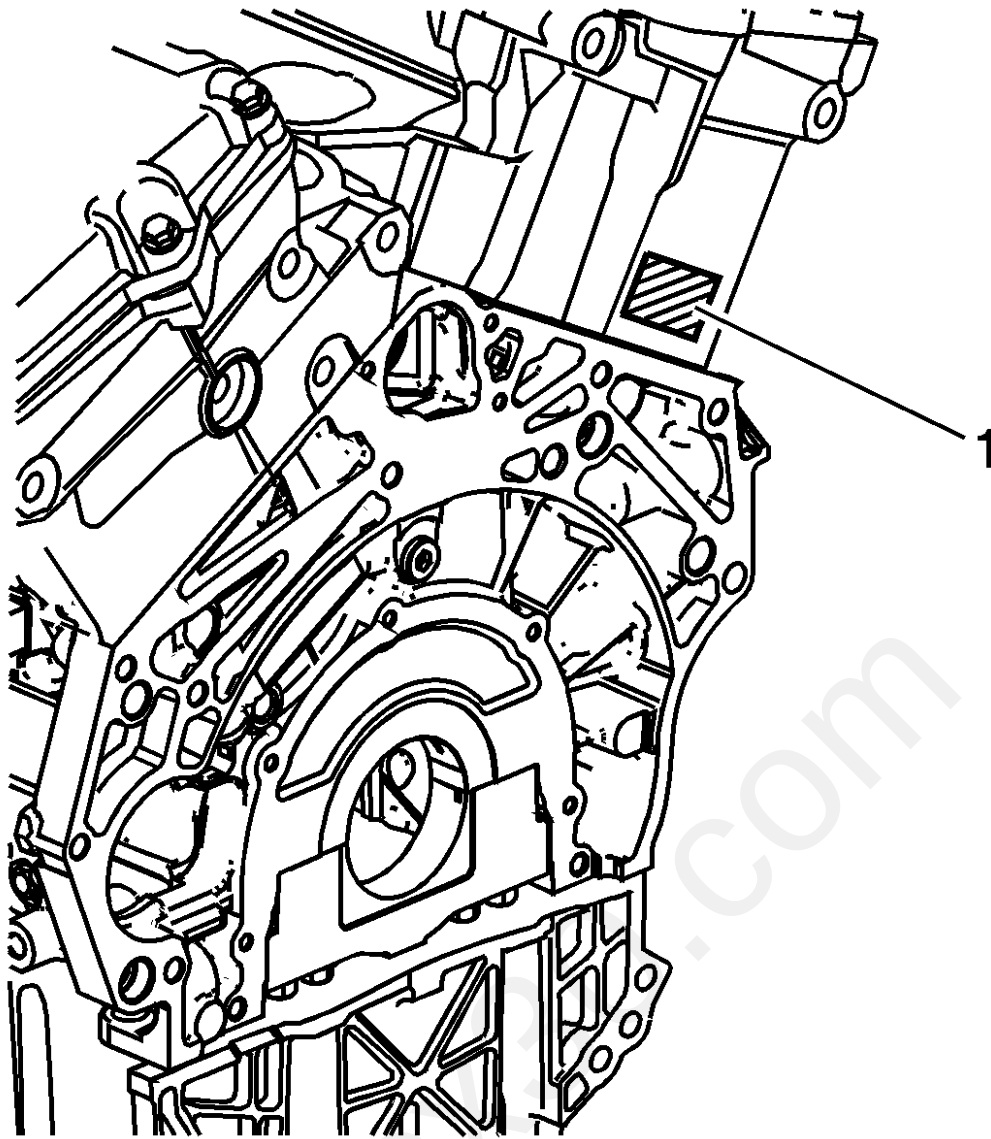


Fig. 19: Engine Verification Label On Rear Of Right Cylinder Head

Courtesy of GENERAL MOTORS COMPANY

Another engine verification label (1) is located on the rear of the right cylinder head. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.
