2014 ENGINE

Engine Mechanical - 3.6L (LLT) - Component Locator - Acadia, Enclave And Traverse

COMPONENT LOCATOR

DISASSEMBLED VIEWS

Engine Covers and Component Assemblies (1 of 2)

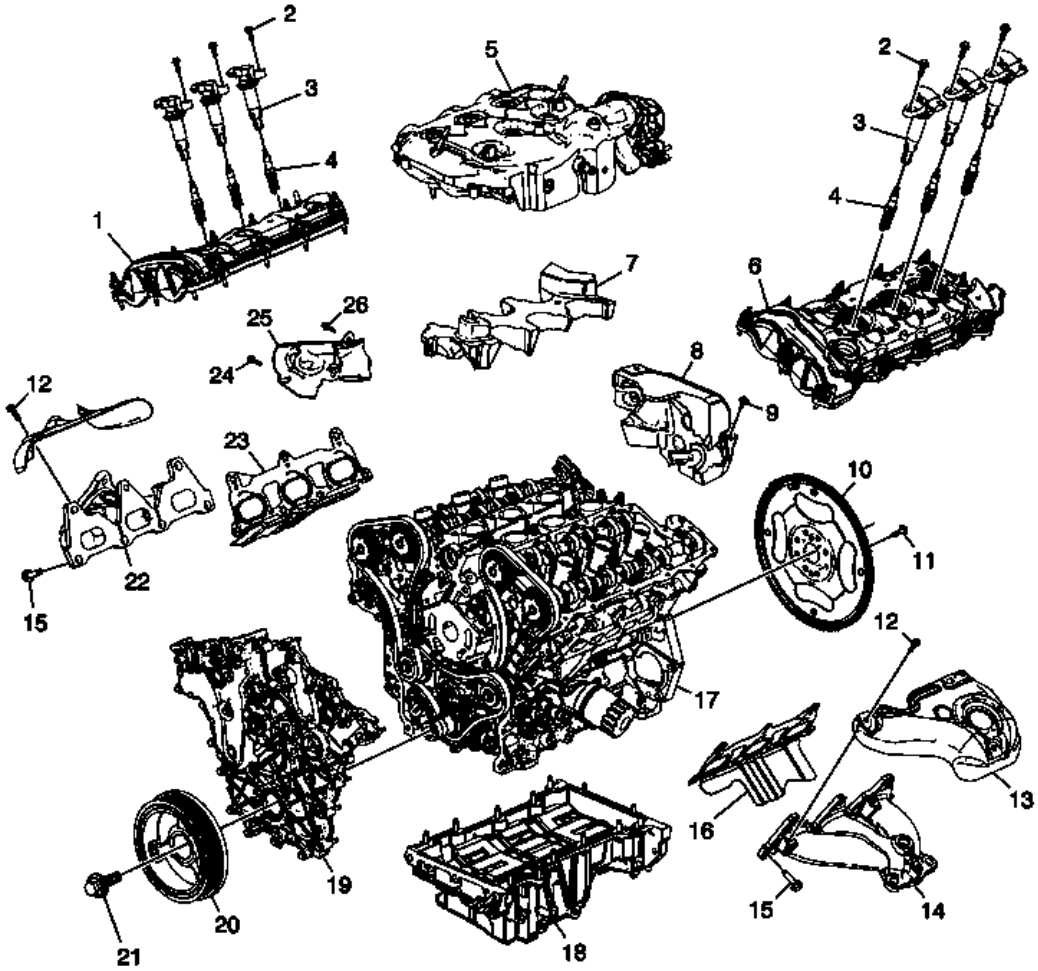

Fig. 1: Identifying Engine Covers and Component Assemblies (1 Of 2)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Right Camshaft Cover Assembly
2	Ignition Coil Bolt
3	Ignition Coil
4	Spark Plug

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5	Intake Manifold Assembly
6	Left Camshaft Cover Assembly
7	Fuel Rail Noise Shield
8	Fuel Pump Cover
9	Fuel Pump Cover Bolt
10	Engine Flywheel
11	Engine Flywheel Bolt
12	Left Exhaust Manifold Heat Shield Bolt
13	Left Exhaust Manifold Heat Shield
14	Left Exhaust Manifold
15	Cylinder Head Exhaust Manifold Bolt
16	Left Exhaust Manifold Gasket
17	Engine Assembly
18	Oil Pan Assembly
19	Engine Front Cover Assembly
20	Crankshaft Balancer
21	Crankshaft Balancer Bolt
22	Right Exhaust Manifold
23	Right Exhaust Manifold Gasket
24	Crankshaft Position Sensor Heat Shield Bolt- Large
25	Crankshaft Position Sensor Heat Shield
26	Crankshaft Position Sensor Heat Shield Bolt- Small

Engine Covers and Component Assemblies (2 of 2)

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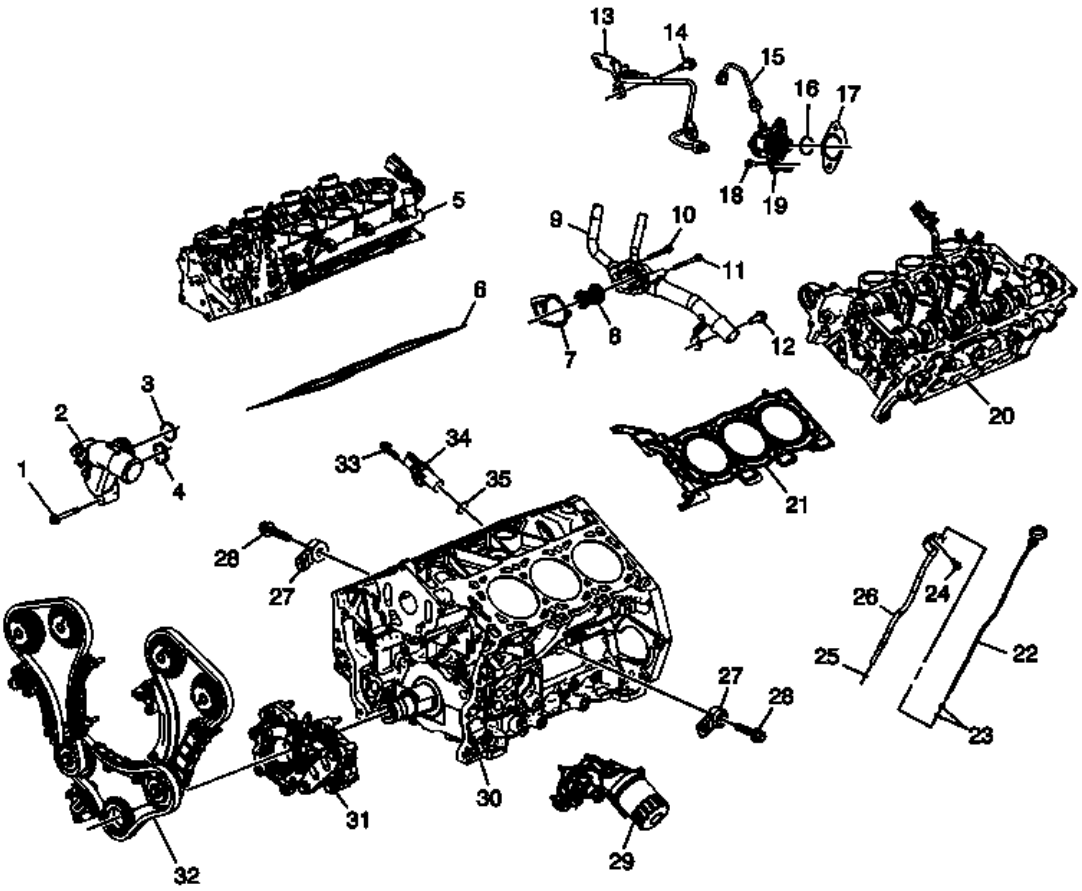

Fig. 2: View Of Engine Covers & Component Assemblies (2 Of 2)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Water Outlet Bolt
2	Water Outlet
3	Water Outlet O-ring
4	Water Outlet Seal
5	Right Cylinder Head Assembly
6	Right Cylinder Head Gasket
7	Engine Cooling Thermostat Gasket
8	Engine Cooling Thermostat
9	Engine Cooling Thermostat Housing
10	Engine Cooling Thermostat Bolt - Short
11	Engine Cooling Thermostat Housing Bolt
12	Coolant Pipe Bracket Bolt
13	Fuel Feed Pipe Assembly

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14	Fuel Feed Pipe Assembly Bolt
15	Fuel Feed Intermediate Pipe Assembly
16	Fuel Pump O-ring Seal
17	Fuel Pump Gasket
18	Fuel Pump Bolt
19	Fuel Pump
20	Left Cylinder Head Assembly
21	Left Cylinder Head Gasket
22	Oil Level Indicator
23	Oil Level Indicator Handle O-ring
24	Oil Level Indicator Tube Bolt
25	Oil Level Indicator Tube O-ring
26	Oil Level Indicator Tube
27	Knock Sensor
28	Knock Sensor Bolt
29	Oil Filter Adapter Assembly
30	Engine Short Block Assembly
31	Oil Pump Assembly
32	Timing Drive Assembly
33	Crankshaft Position Sensor Bolt
34	Crankshaft Position Sensor
35	Crankshaft Position Sensor O-ring

Camshaft Cover Assembly

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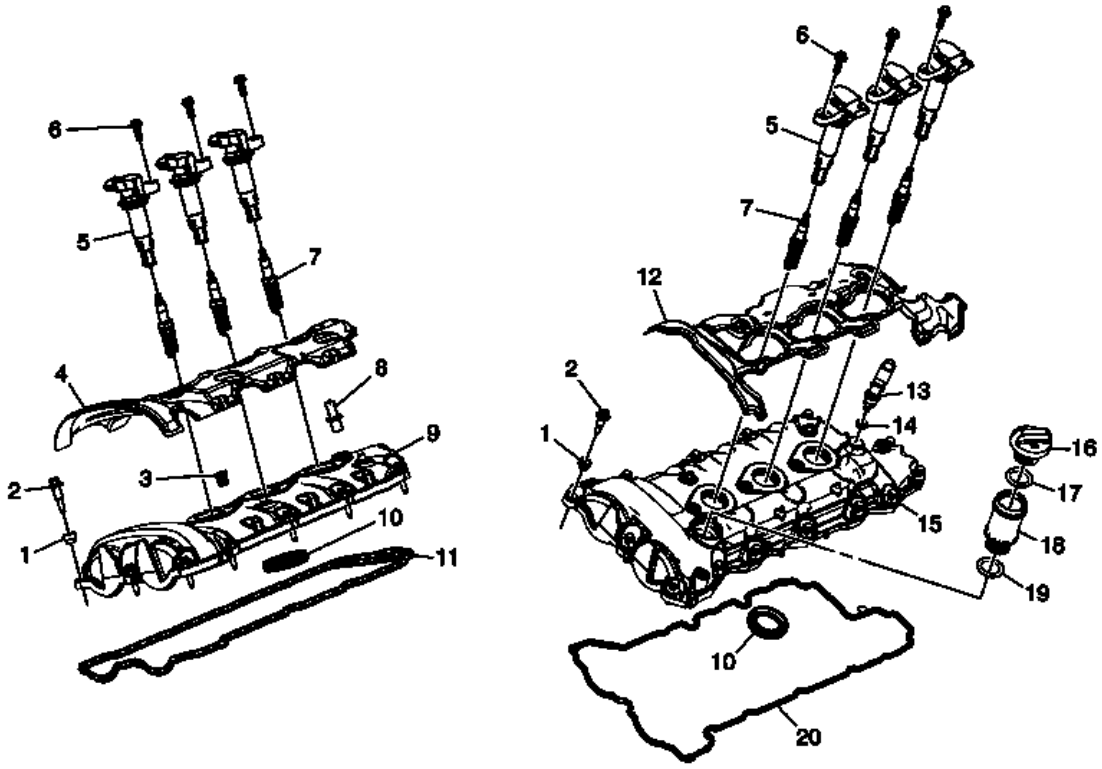

Fig. 3: Camshaft Cover Assembly Components
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Camshaft Cover Bolt Insulator
2	Camshaft Cover Bolt
3	Ignition Coil Bolt Thread Insert
4	Right Camshaft Housing Cover Insulator
5	Ignition Coil
6	Ignition Coil Bolt
7	Spark Plug
8	Right Camshaft Cover PCV Fitting Orifice
9	Right Camshaft Cover
10	Camshaft Cover Spark Plug Port Seal
11	Right Camshaft Cover Gasket
12	Left Camshaft Housing Cover Insulator
13	Left Camshaft Cover PCV Fitting

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14	Left Camshaft Cover PCV Fitting O-ring Seal
15	Left Camshaft Cover
16	Oil Fill Cap
17	Oil Fill Cap O-ring Seal
18	Oil Fill Tube
19	Oil Fill Tube O-ring Seal
20	Left Camshaft Cover Gasket

Camshaft Timing Components

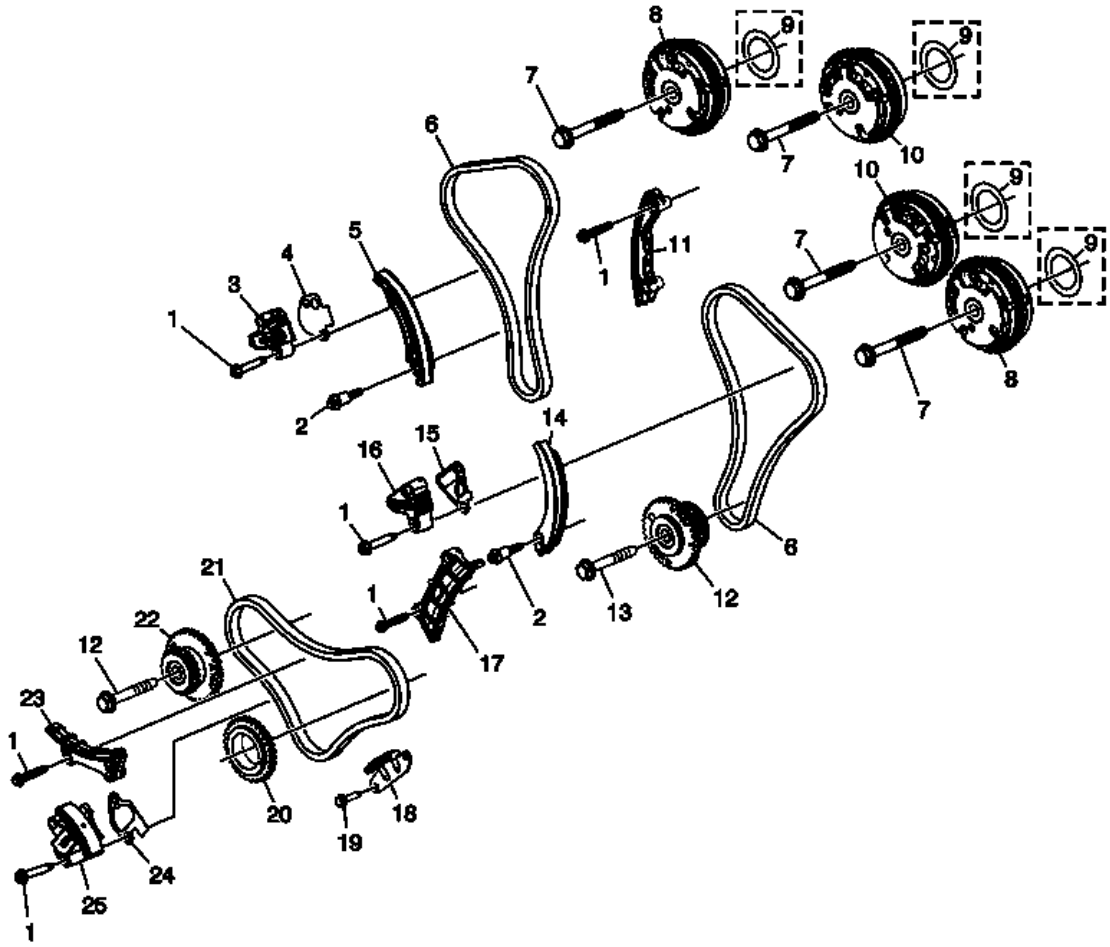

Fig. 4: View Of Camshaft Timing Components - Fourth Design
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Primary Timing Chain Tensioner Bolt
2	Left Secondary Timing Chain Shoe Bolt
3	Right Secondary Timing Chain Tensioner

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4	Right Secondary Timing Chain Tensioner Gasket
5	Right Secondary Timing Chain Shoe
6	Secondary Timing Chain
7	Camshaft Position Actuator Bolt
8	Exhaust Camshaft Position Actuator
9	Camshaft Position Actuator Thrust Washer
10	Intake Camshaft Position Actuator
11	Right Secondary Timing Chain Guide
12	Left Camshaft Intermediate Drive Shaft Sprocket
13	Camshaft Intermediate Drive Shaft Sprocket Bolt
14	Left Secondary Timing Chain Shoe
15	Left Secondary Timing Chain Tensioner Gasket
16	Left Secondary Timing Chain Tensioner
17	Left Secondary Timing Chain Guide
18	Lower Primary Timing Chain Guide
19	Lower Primary Timing Chain Guide Bolt
20	Crankshaft Sprocket
21	Primary Timing Chain
22	Right Camshaft Intermediate Drive Shaft Sprocket
23	Upper Primary Timing Chain Guide
24	Primary Timing Chain Tensioner Gasket
25	Primary Timing Chain Tensioner

Intake Manifold

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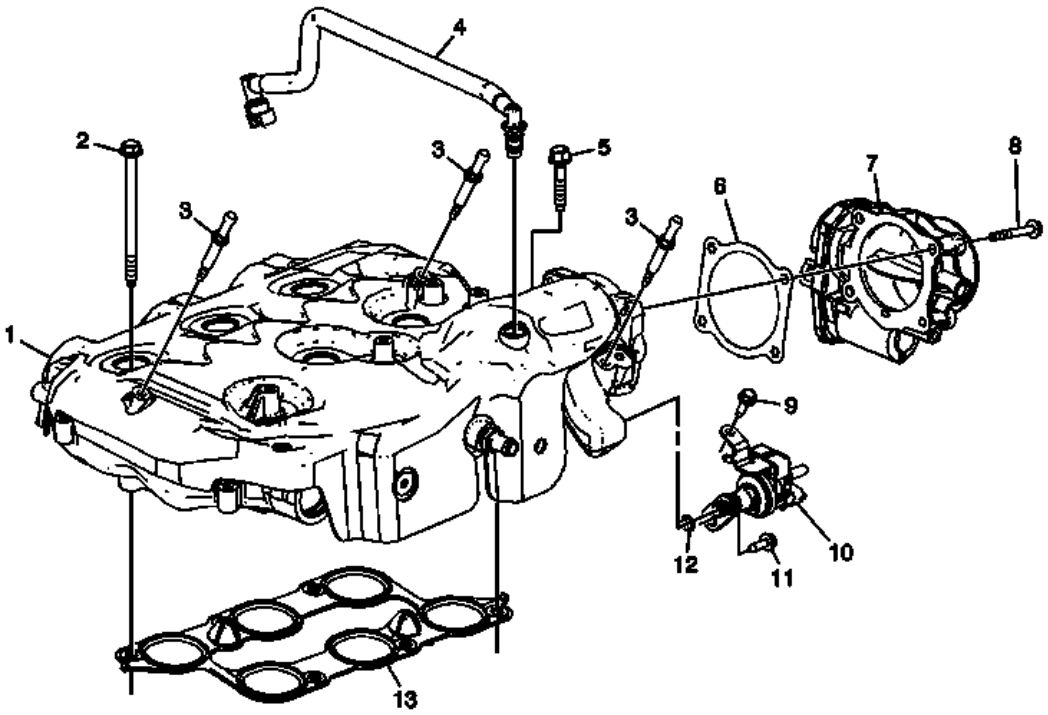

Fig. 5: View Of Intake Manifold
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Intake Manifold
2	Intake Manifold Bolt - Long
3	Sight Shield Ball Stud
4	PCV Tube
5	Intake Manifold Bolt - Short
6	Throttle Body Gasket
7	Throttle Body
8	Throttle Body Bolt
9	EVAP Solenoid Bolt
10	EVAP Solenoid
11	EVAP Solenoid Bolt
12	EVAP Solenoid O-ring Seal
13	Intake Manifold Gasket

Fuel Rail

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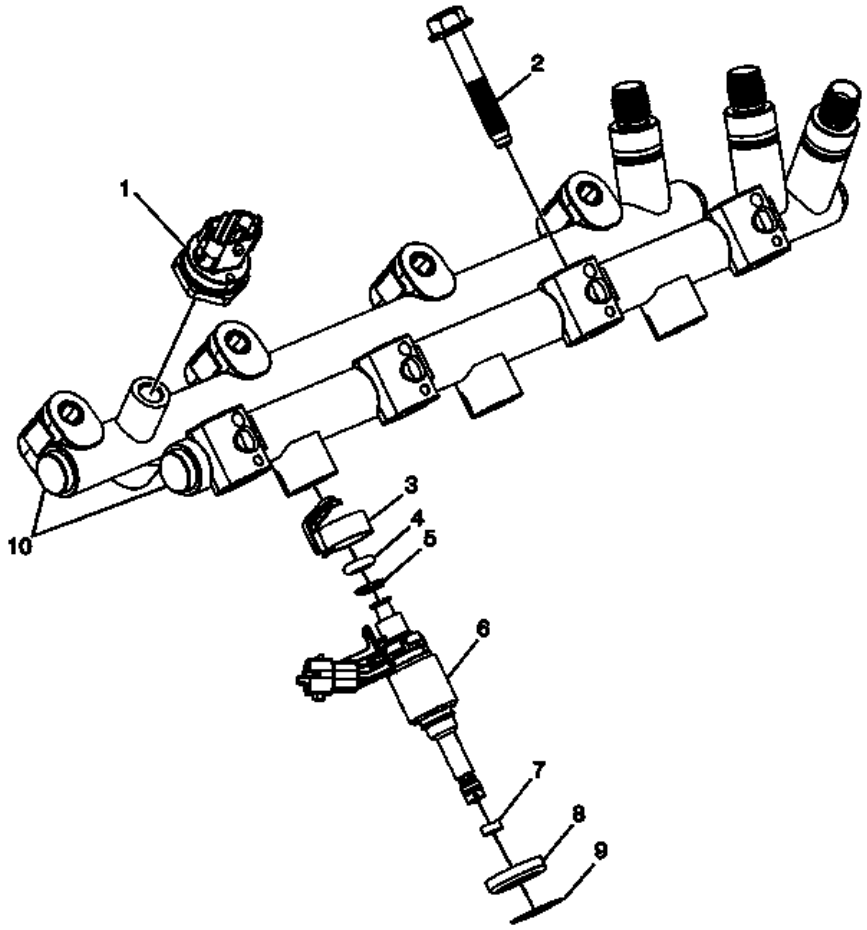

Fig. 6: Identifying Fuel Rail Components (LLT)
Courtesy of GENERAL MOTORS COMPANY

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

Cylinder Head Assemblies

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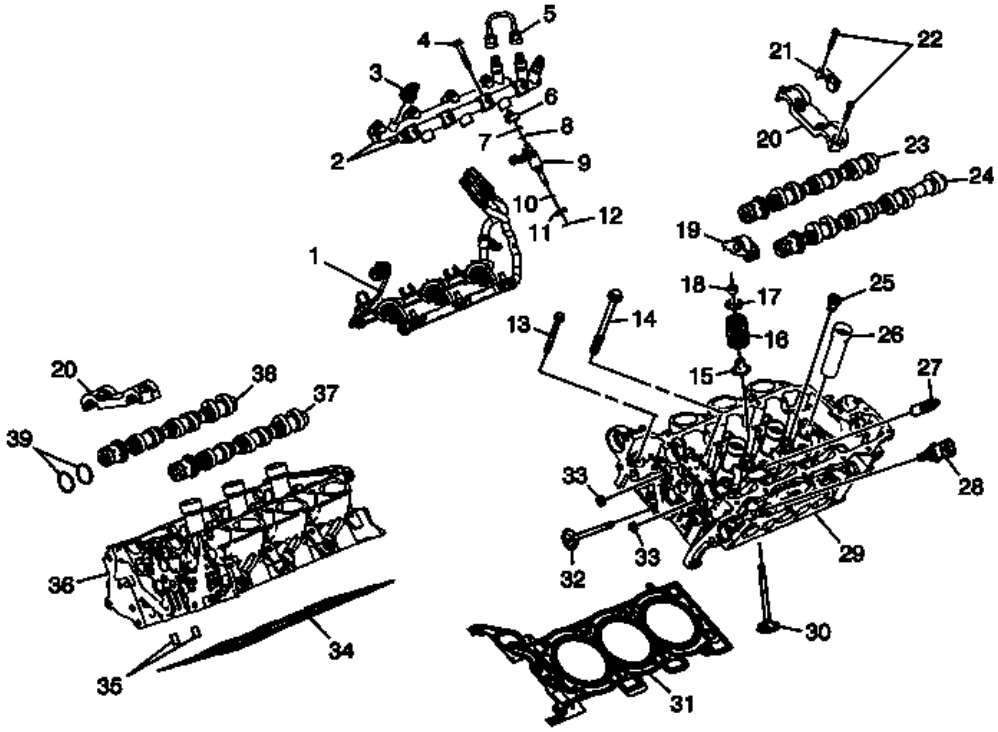

Fig. 7: Disassembled View Of Cylinder Head Assemblies
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Fuel Injector Wiring Harness
2	Fuel Rail
3	Fuel Pressure Sensor
4	Fuel Rail Bolt
5	Fuel Rail Crossover Pipe
6	Fuel Injector Retainer
7	Fuel Injector O-ring Seal
8	Fuel Injector Spacer
9	Fuel Injector
10	Fuel Injector Teflon Seal
11	Fuel Injector Isolator Cup
12	Fuel Injector Isolator Cup Retaining Ring
13	Cylinder Head Front Bolt
14	Cylinder Head Bolt
15	Valve Stem Oil Seal
16	Valve Spring
17	Valve Spring Cap
18	Valve Stem Key
19	Valve Rocker Arm Assembly

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20	Cylinder Head Camshaft Front Thrust Bearing Cap
21	Cylinder Head Camshaft Cap - Intermediate
22	Cylinder Head Camshaft Cap Bolt
23	Left Intake Camshaft
24	Left Exhaust Camshaft
25	Cylinder Head Coolant Hole Threaded Plug
26	Spark Plug Sleeve
27	Hydraulic Valve Lash Adjuster Assembly
28	Engine Coolant Temperature Sensor
29	Left Cylinder Head
30	Intake Valve
31	Left Cylinder Head Gasket
32	Exhaust Valve
33	Cylinder Head Oil Gallery Expansion Plug - 14 mm
34	Right Cylinder Head Gasket
35	Cylinder Head Oil Gallery Check Valve
36	Right Cylinder Head
37	Right Exhaust Camshaft
38	Right Intake Camshaft
39	Camshaft Oil Seal Ring

Engine Front Cover

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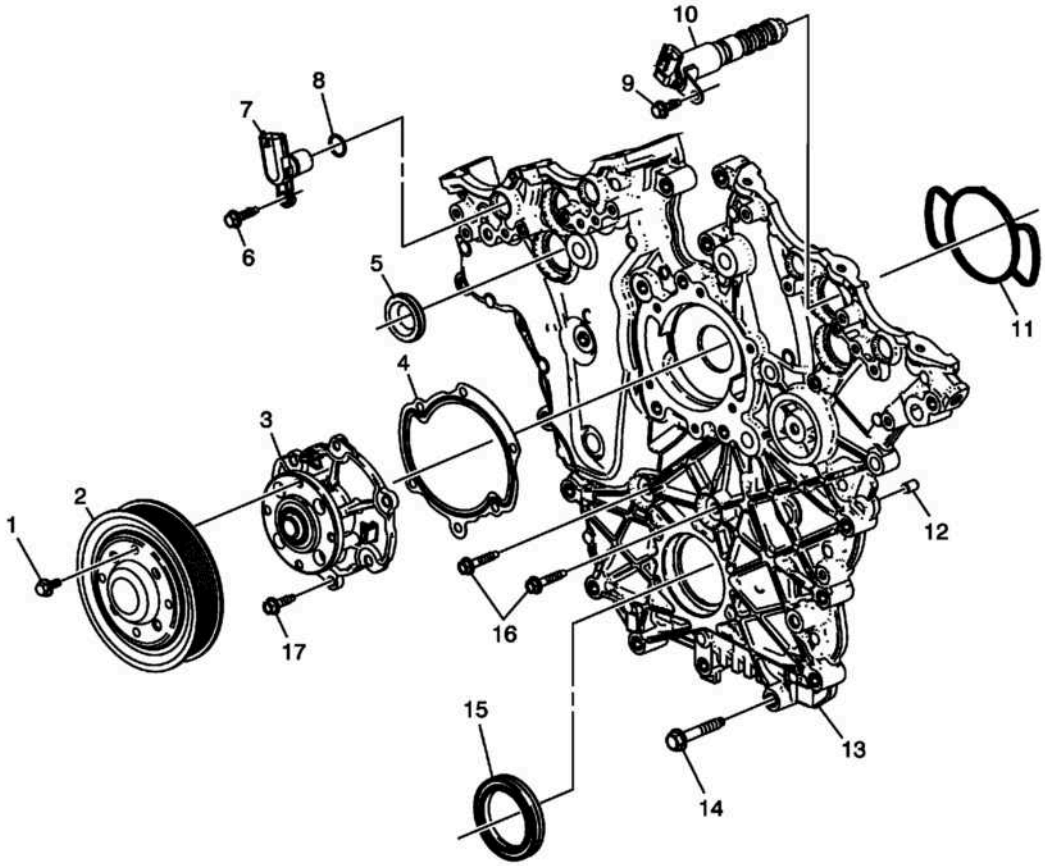

Fig. 8: View Of Engine Front Cover Components (LFX)
Courtesy of GENERAL MOTORS COMPANY

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
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

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14	Engine Front Cover Bolt
15	Engine Front Cover Seal
16	Engine Front Cover Bolt
17	Water Pump Bolt

Oil Pump - Second Design

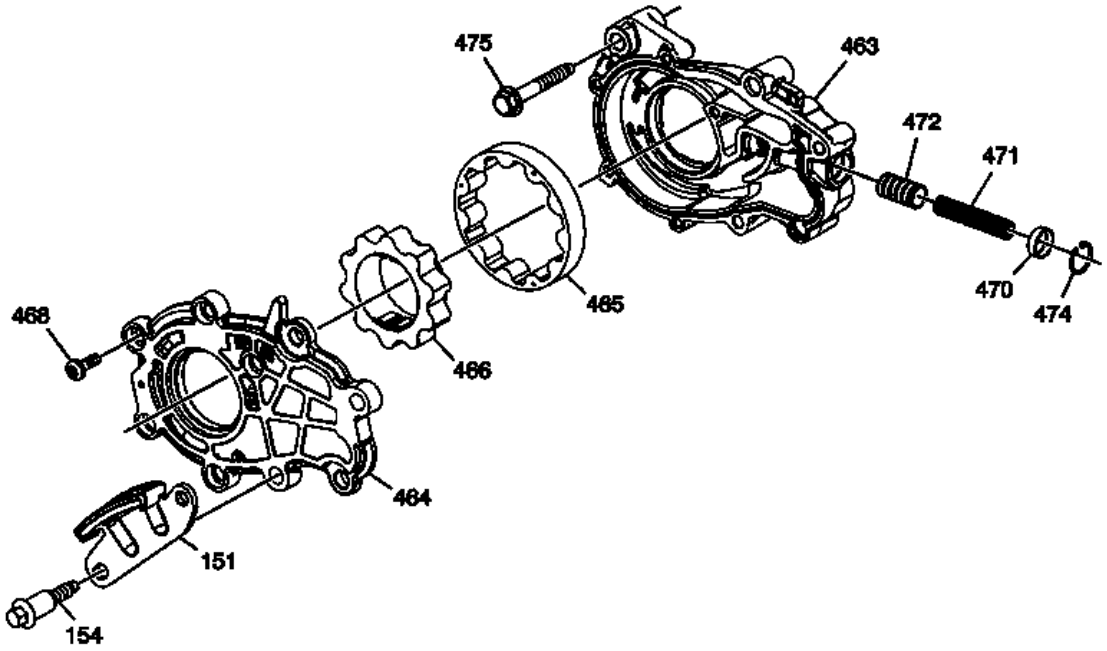

Fig. 9: Disassembled View Of Oil Pump - Second Design
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
151	Lower Primary Timing Chain Guide
154	Lower Primary Timing Chain Guide Bolt
463	Oil Pump Housing
464	Oil Pump Cover
465	Oil Pump Driven Gear
466	Oil Pump Drive Gear
468	Oil Pump Cover Bolt
470	Oil Pressure Relief Valve Bore Plug
471	Oil Pressure Relief Valve Spring
472	Oil Pressure Relief Valve
474	Oil Pressure Relief Valve Bore Plug Retainer Clip
475	Oil Pump Bolt

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Engine Block Assembly

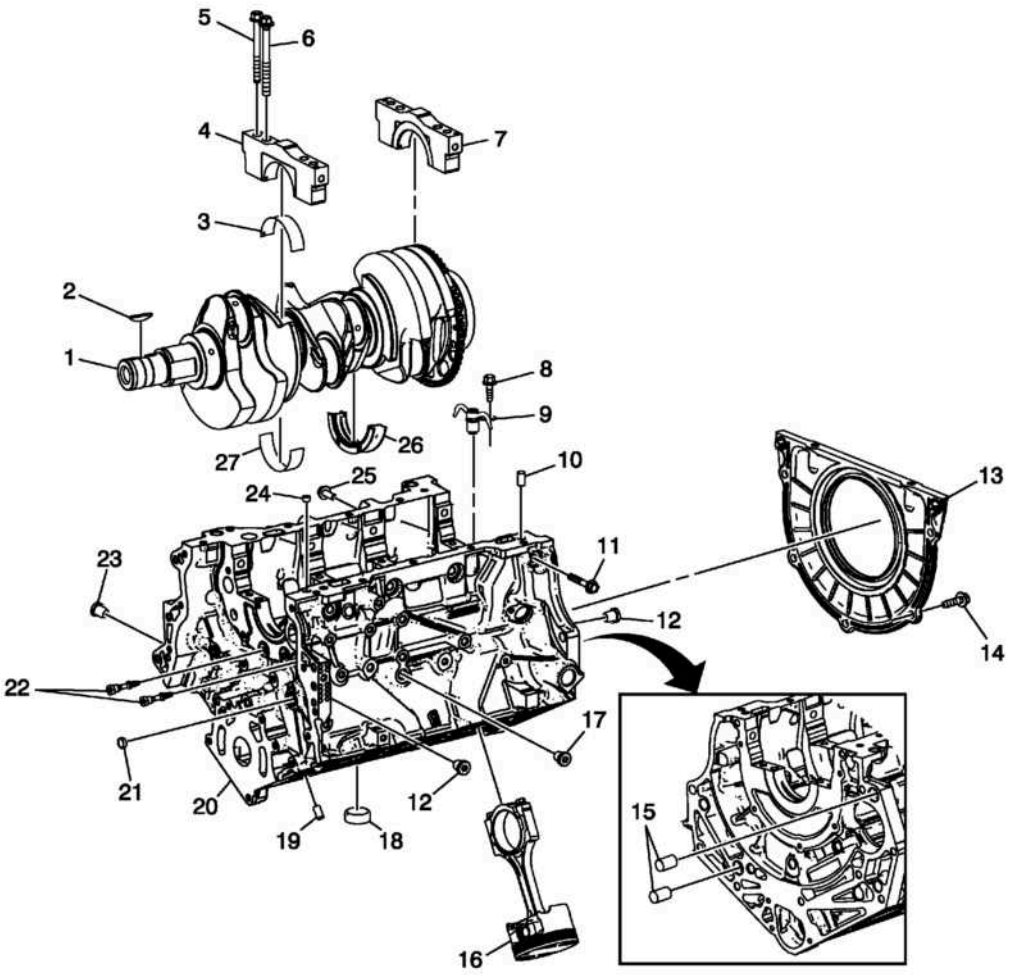

Fig. 10: Identifying Engine Block Assembly Components (LFX)
Courtesy of GENERAL MOTORS COMPANY

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

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12	Engine Block Oil Gallery Threaded Plug - 14 mm
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

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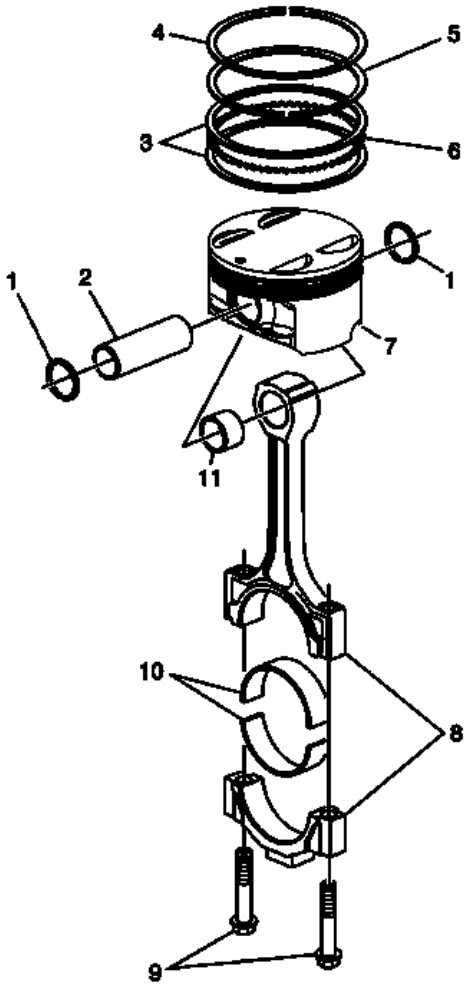

Fig. 11: Piston, Rings, Bearing and Connecting Rod
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Piston Pin Retainer
2	Piston Pin
3	Piston Oil Control Rail Ring
4	Piston Upper Compression Ring
5	Piston Lower Compression Ring
6	Piston Oil Control Ring Spacer
7	Piston
8	Connecting Rod
9	Connecting Rod Bolt
10	Connecting Rod Bearing
11	Connecting Rod Bushing

Oil Pan Assembly

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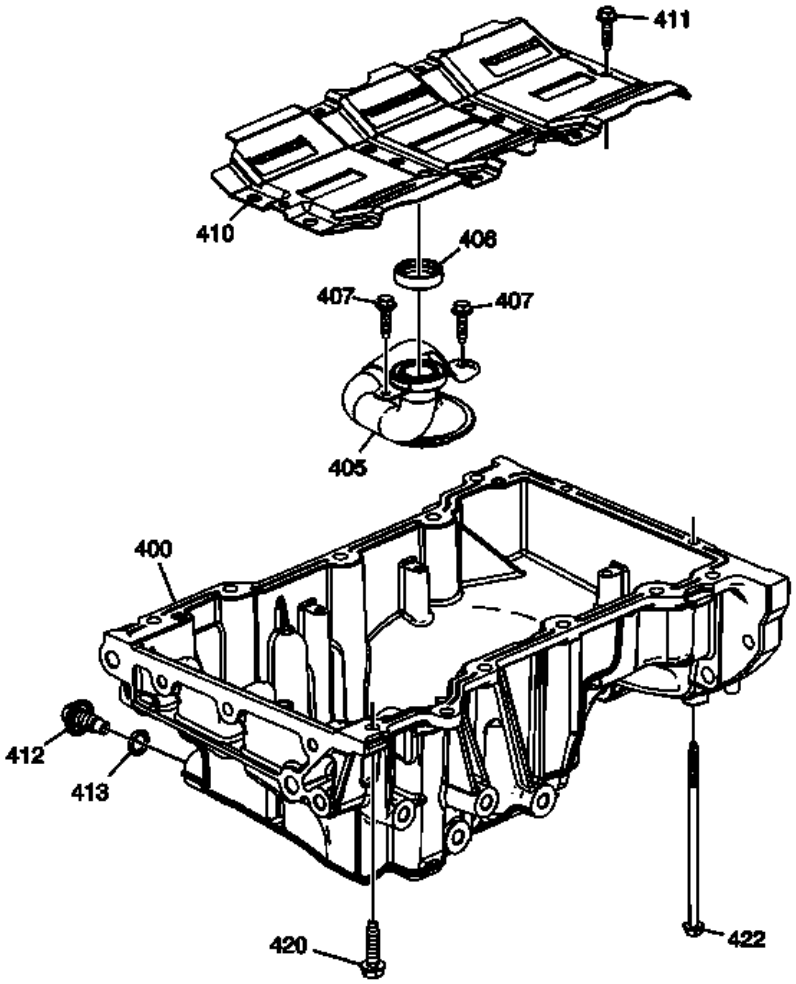

Fig. 12: Identifying Oil Pan Assembly Components
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
400	Oil Pan
405	Oil Pump Suction Pipe
406	Oil Pump Suction Pipe Gasket
407	Oil Pump Suction Pipe Bolt
407	Oil Pump Suction Pipe Bolt
410	Oil Pan Baffle Scraper
411	Oil Pan Baffle Scraper Bolt
412	Oil Pan Drain Plug
413	Oil Pan Drain Plug O-ring
420	Oil Pan Bolt
422	Oil Pan Bolt - Long

Oil Filter Adapter

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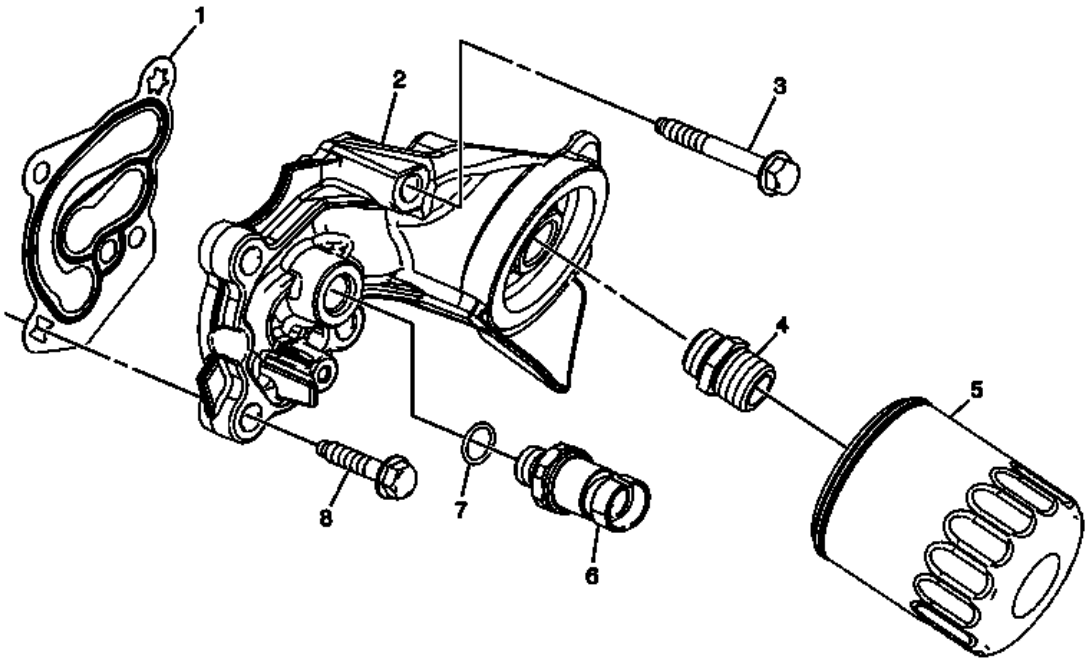

Fig. 13: Oil Filter Adapter
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Oil Filter Adapter Gasket
2	Oil Filter Adapter
3	Oil Filter Adapter Bolt - Long
4	Oil Filter Fitting
5	Oil Filter
6	Engine Oil Pressure Sensor
7	Engine Oil Pressure Sensor Seal
8	Oil Filter Adapter Bolt

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.

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- The fourth through ninth digits are the last six digits of the Vehicle Identification Number (VIN).

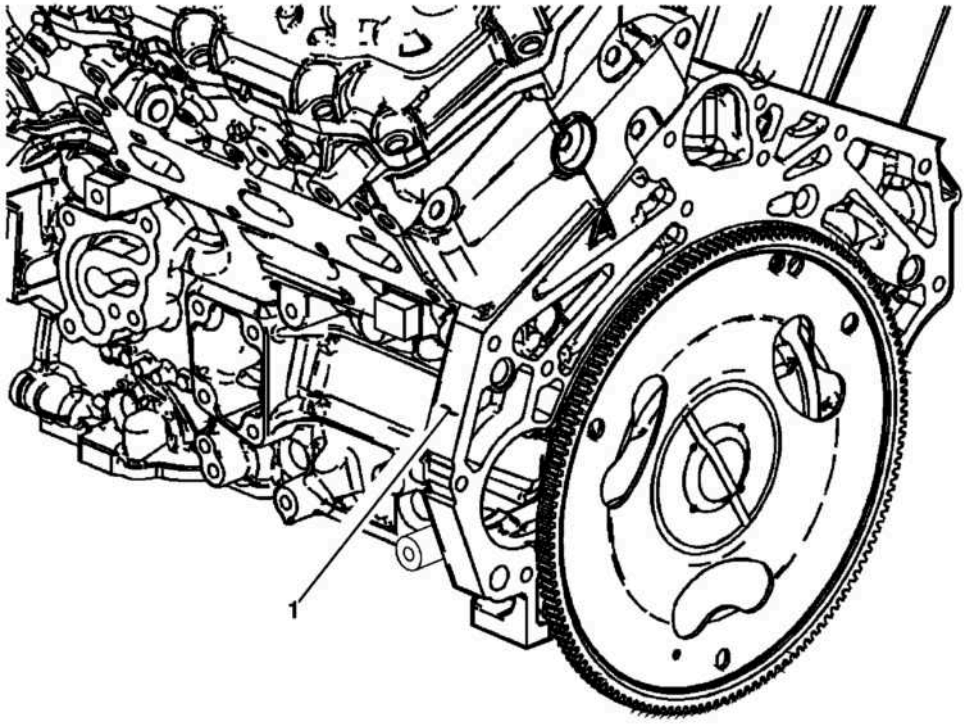

Fig. 14: Locating Engine VIN - Left Rear Side
Courtesy of GENERAL MOTORS COMPANY

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

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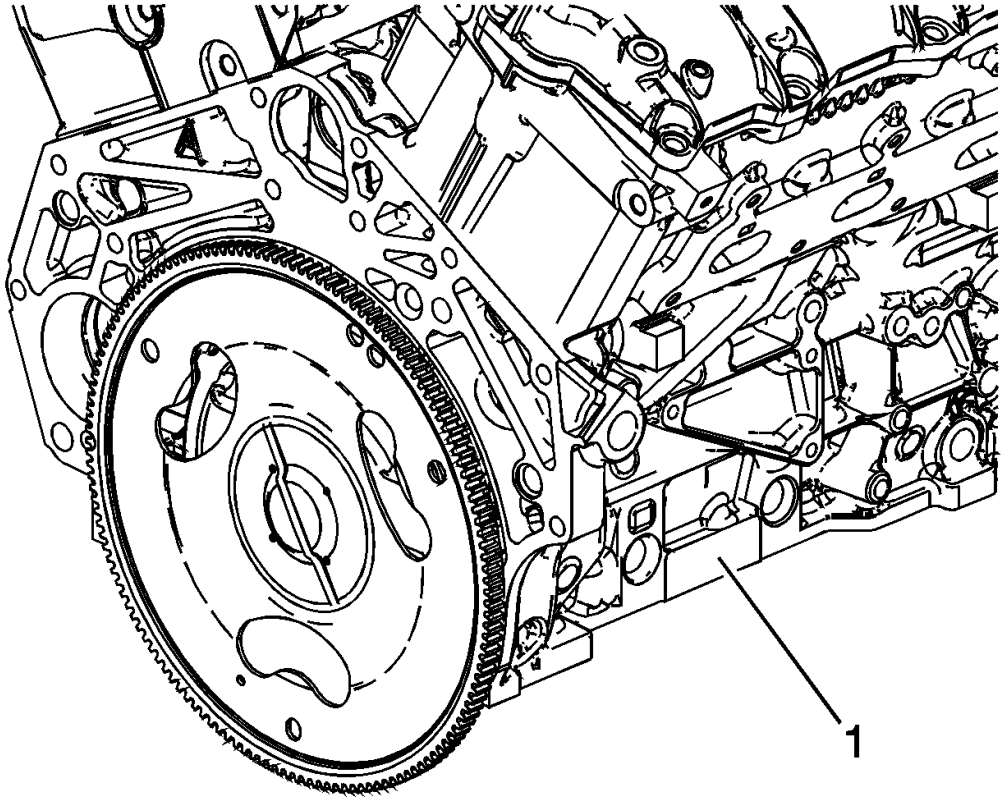

Fig. 15: Locating Vehicle Identification Number (VIN) - Center Lower Right Side
Courtesy of GENERAL MOTORS COMPANY

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.

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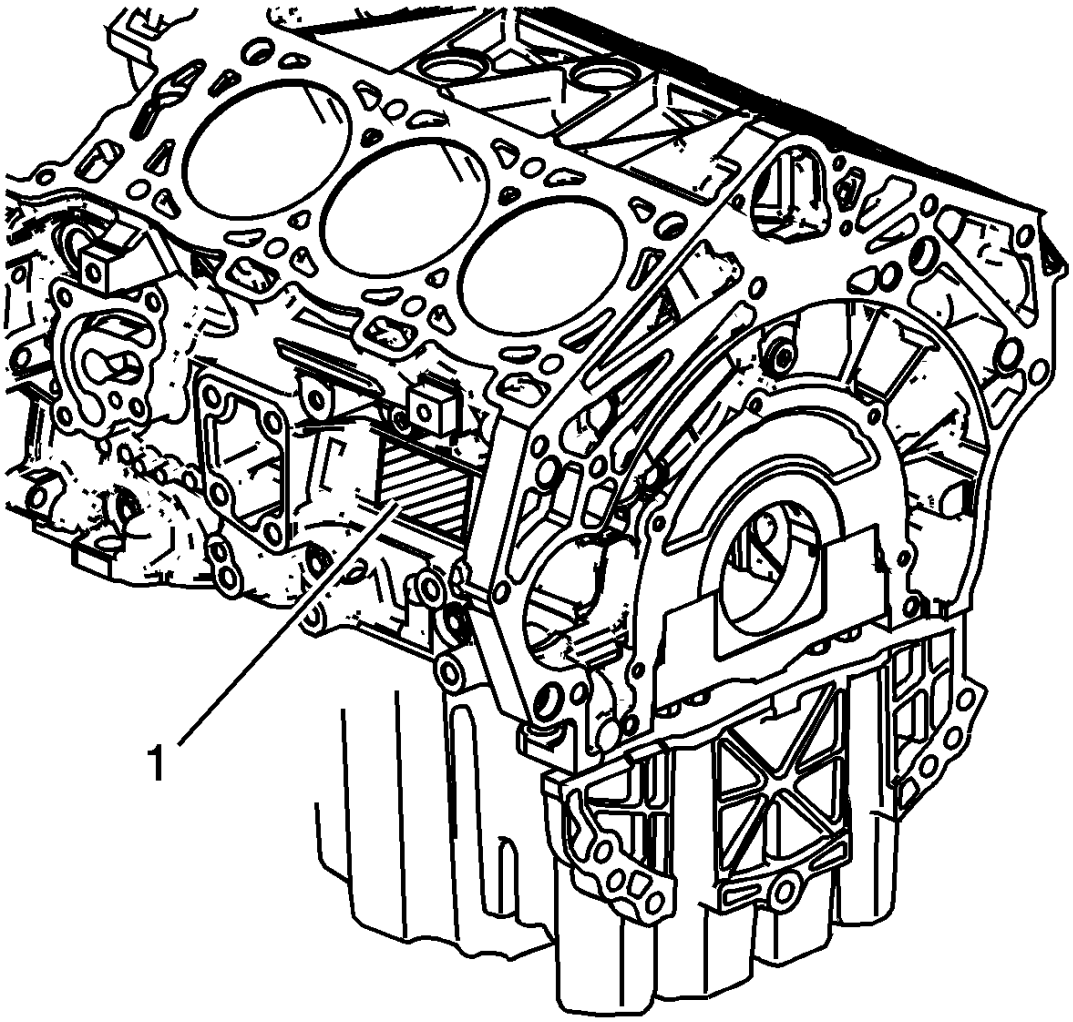

Fig. 16: Locating Left Rear Engine Traceability Label
Courtesy of GENERAL MOTORS COMPANY

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.

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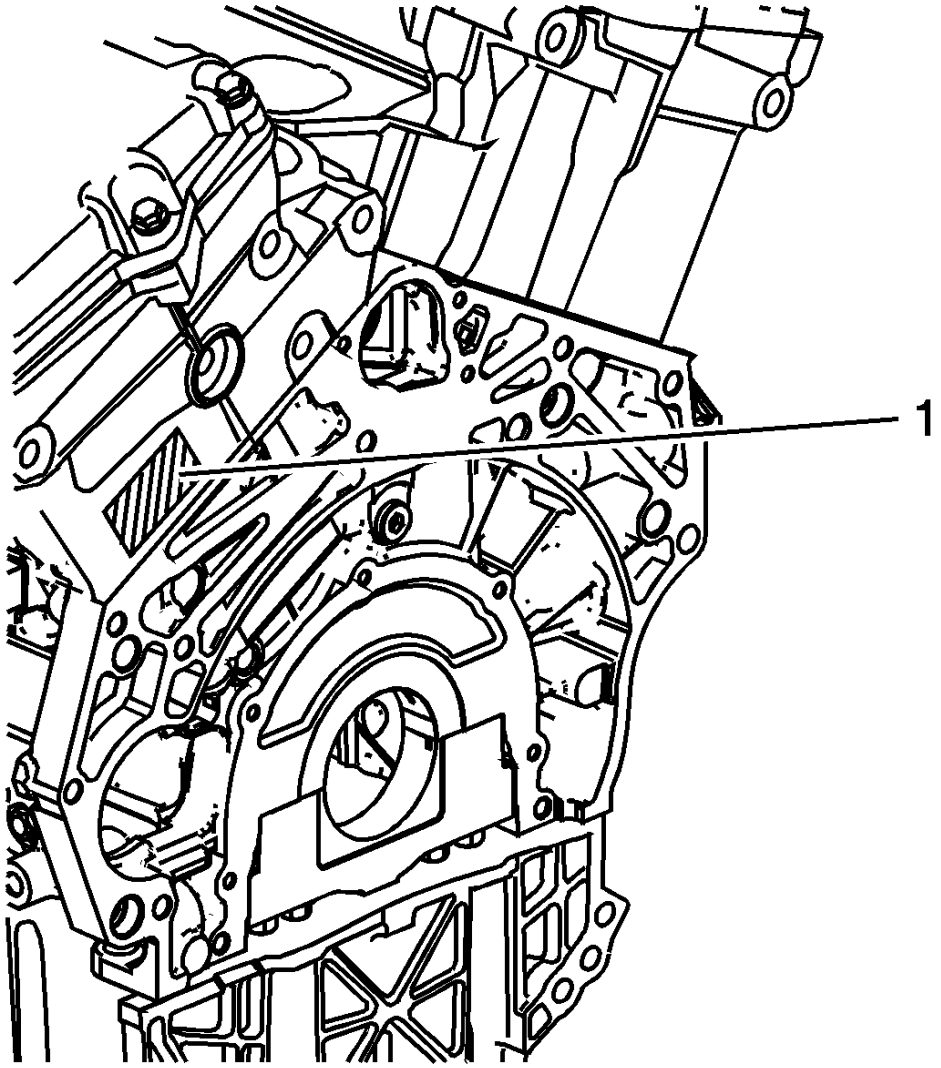

Fig. 17: View Of Engine Traceability Label On Left Cylinder Head
Courtesy of GENERAL MOTORS COMPANY

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.

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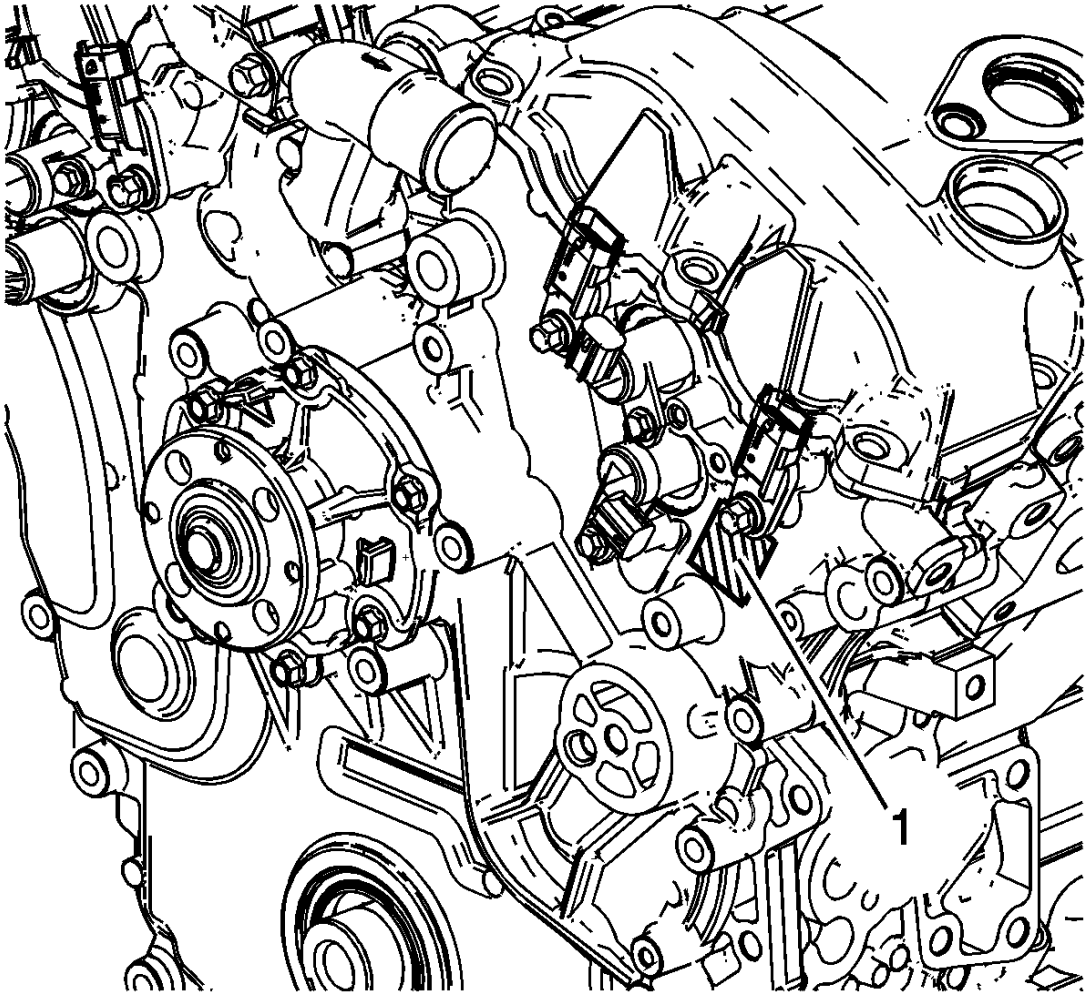

Fig. 18: Locating Left Engine Verification Label
Courtesy of GENERAL MOTORS COMPANY

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.

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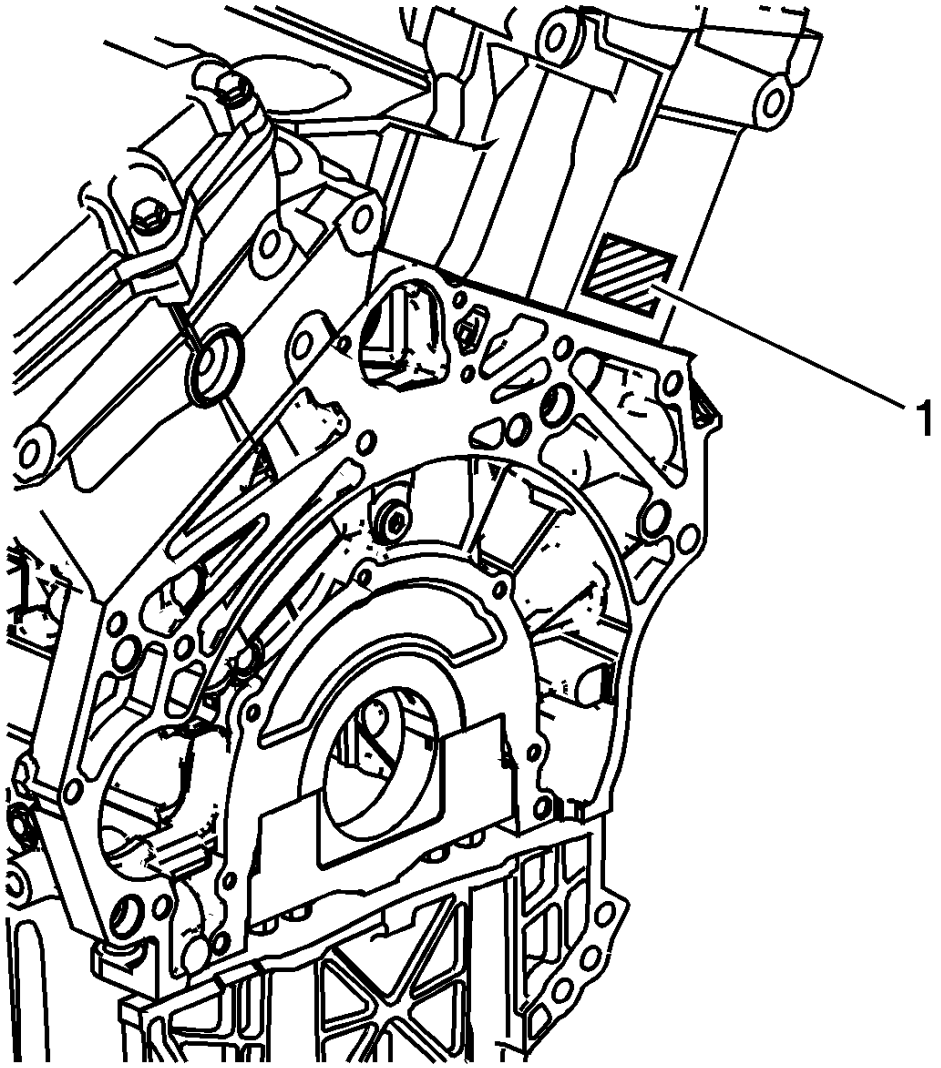

Fig. 19: Identifying Engine Verification Label On Rear Of Right Cylinder Head
Courtesy of GENERAL MOTORS COMPANY

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.

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