

2021 ENGINE

Engine Mechanical - 3.6L (LGZ) - Visual Identification / Disassembled Views - Canyon, Colorado

DISASSEMBLED VIEWS

ENGINE COMPONENT ASSEMBLIES

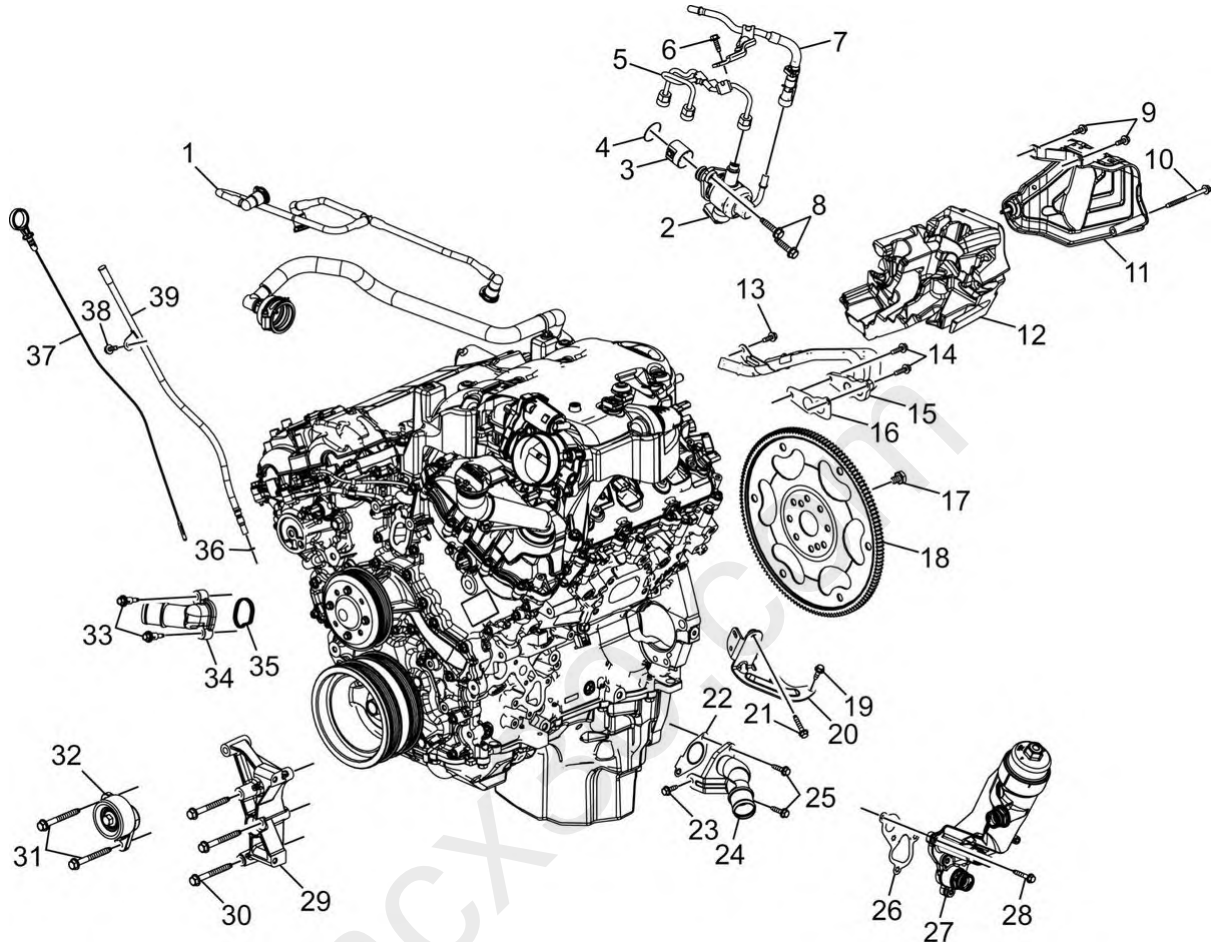


Fig. 1: Exploded View Of Engine Component Assemblies

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Positive Crankcase Ventilation Tube Connector (PCV)
2	Fuel Pump
3	Valve Lifter Follower
4	Fuel Pump O-Ring
5	Fuel Feed Intermediate Pipe
6	Fuel Feed Pipe Bolt
7	Fuel Feed Pipe
8	Fuel Pump Bolt [2x]
9	Fuel Pipe Shield Bolt [2x]
10	Fuel Pipe Shield Bolt
11	Fuel Pipe Shield
12	Engine Rear Noise Shield
13	Heater Inlet and Outlet Pipe Bolt

Callout	Component Name
14	Heater Inlet and Outlet Pipe Bolt [2x]
15	Heater Inlet and Outlet Pipe
16	Heater Inlet and Outlet Pipe Gasket
17	Automatic Transmission Flex Plate Bolt [8x]
18	Automatic Transmission Flex Plate
19	Oil Filler Tube Bracket Bolt
20	Oil Filler Tube Bracket
21	Oil Filler Tube Bracket Bolt
22	Water Inlet Seal
23	Water Pump Inlet Pipe Bolt
24	Water Pump Inlet Pipe
25	Water Pump Inlet Pipe Bolt [2x]
26	Oil Filter Adapter Gasket
27	Oil Filter Adapter
28	Oil Filter Adapter Bolt
29	Air Conditioning Compressor Bracket
30	Air Conditioning Compressor Bracket Bolt [3x]
31	Drive Belt Tensioner
32	Drive Belt Tensioner Bolt [2x]
33	Water Outlet Bolt [2x]
34	Water Outlet Pipe
35	Water Outlet Pipe Seal
36	Oil Level Indicator Tube Seal
37	Oil Level Indicator
38	Oil Level Indicator Tube Bolt
39	Oil Level Indicator Tube

INTAKE MANIFOLD AND COMPONENTS

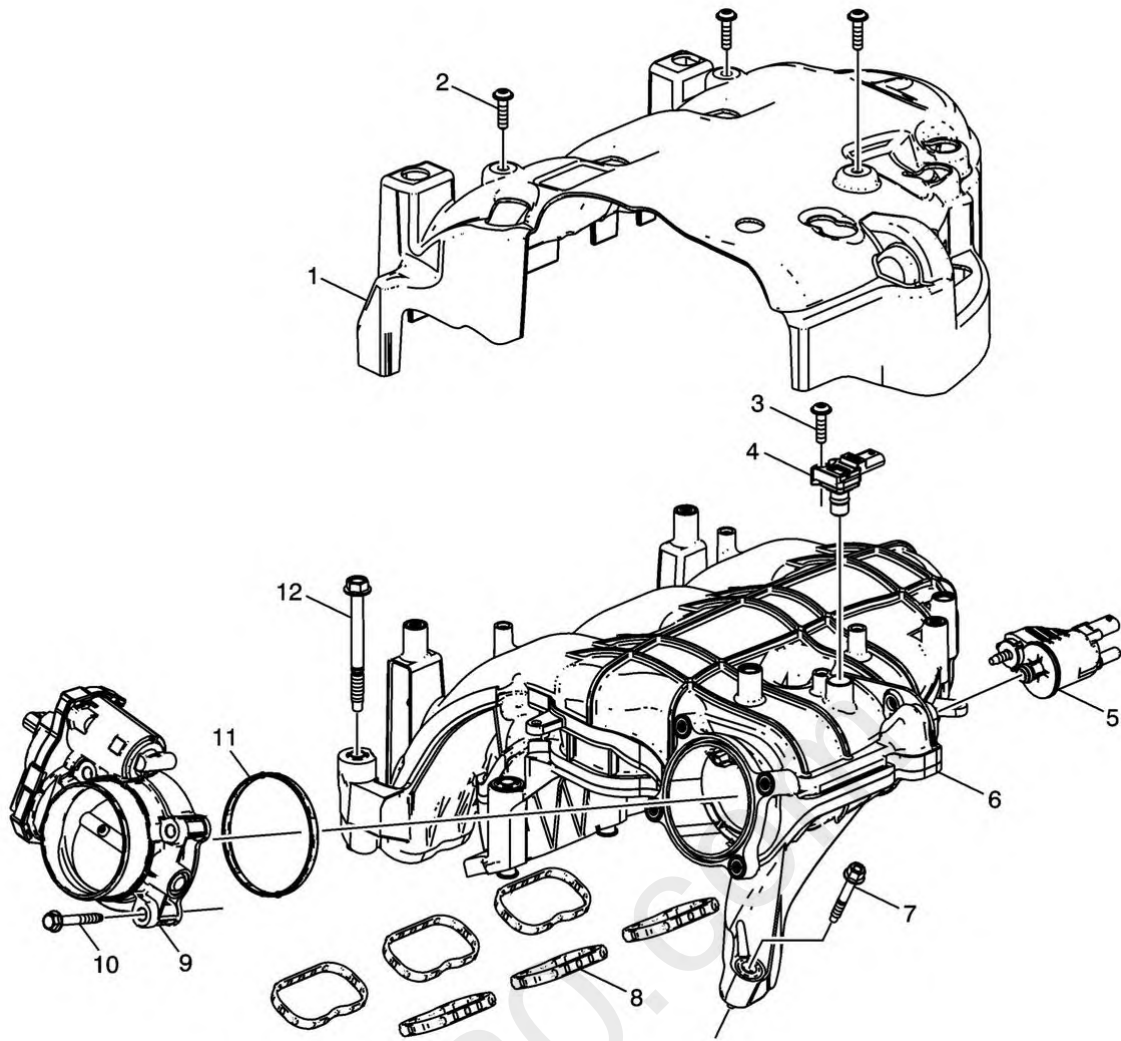


Fig. 2: Exploded View Of Intake Manifold Components
 Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Intake Manifold Insulator
2	Intake Manifold Insulator Retainer
3	Manifold Absolute Pressure Sensor Bolt
4	Manifold Absolute Pressure Sensor
5	Evaporative Emission Canister
6	Intake Manifold
7	Intake Manifold Bolt
8	Intake Manifold Seal
9	Throttle Body
10	Throttle Body Bolt [4x]
11	Throttle Body Gasket
12	Intake Manifold Bolt [8x]

FUEL RAIL ASSEMBLY

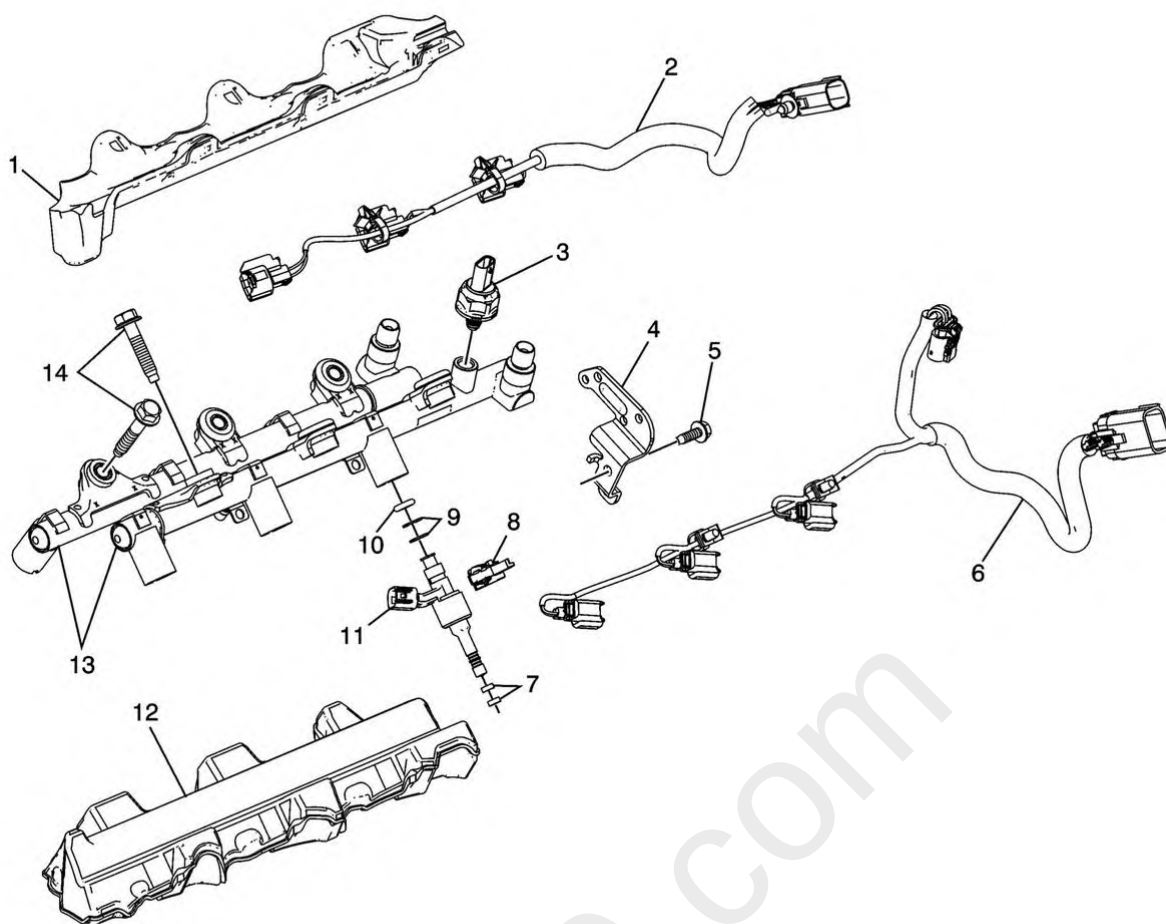


Fig. 3: Fuel Rail Assembly Components Location

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Fuel Injection Fuel Rail Noise Shield
2	Fuel Injector Wiring Harness
3	Fuel Injection Fuel Rail Fuel Pressure Sensor
4	Fuel Injector Wiring Harness Bracket
5	Fuel Injector Wiring Harness Bracket Bolt [2x]
6	Fuel Injector Wiring Harness
7	Fuel Injector Nozzle Housing Seal
8	Fuel Injector Retainer
9	Fuel Injector Spacer
10	Fuel Injection Fuel Rail Seal - (O-ring)
11	Direct Fuel Injector
12	Fuel Injection Fuel Rail Noise Shield
13	Direct Fuel Injection Fuel Rail
14	Fuel Injection Fuel Rail Bolt [6x]

CAMSHAFT COVER AND COMPONENTS

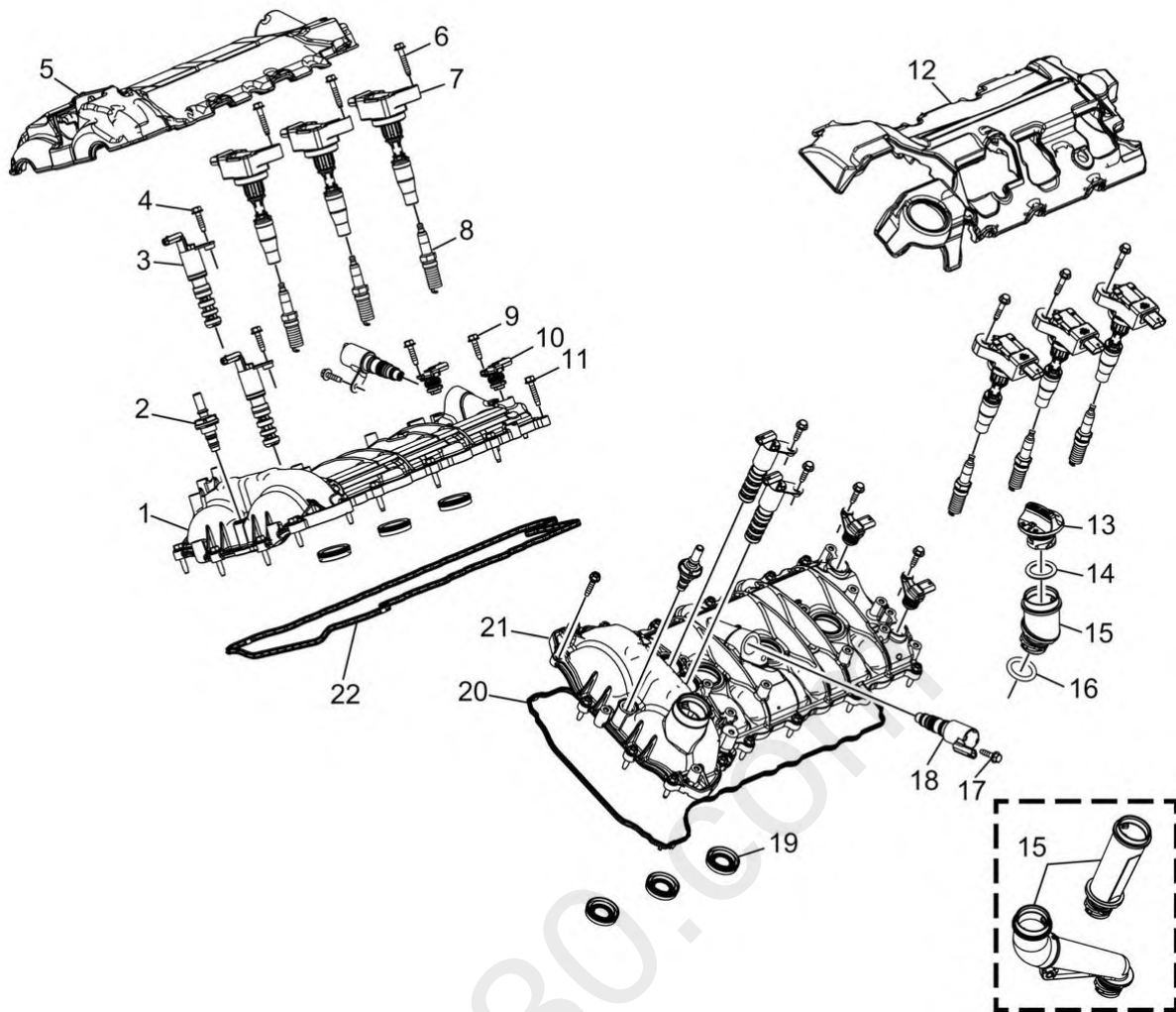


Fig. 4: Exploded View Of Camshaft Cover Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Camshaft Cover - Right
2	Positive Crankcase Ventilation Valve
3	Camshaft Position Actuator Solenoid Valve
4	Camshaft Position Actuator Solenoid Valve Bolt [4x]
5	Camshaft Housing Cover Insulator - Right
6	Ignition Coil Bolt [6x]
7	Ignition Coil
8	Spark Plug [6x]
9	Camshaft Position Sensor Bolt [4x]
10	Camshaft Position Sensor [4x]
11	Camshaft Cover Bolt [36x]
12	Camshaft Housing Cover Insulator - Left
13	Oil Filler Cap (Model Dependant)
14	Oil Filler Cap Seal (Model Dependant)
15	Oil Filler Cap Tube (Model Dependant)
16	Oil Filler Cap Tube Seal (Model Dependant)
17	Valve Rocker Arm Oil Control Valve Bolt [2x]

Callout	Component Name
18	Valve Rocker Arm Oil Control Valve
19	Spark Plug Shield Seal
20	Camshaft Cover Seal - Left
21	Camshaft Cover - Left
22	Camshaft Cover Seal - Right

CAMSHAFT TIMING COMPONENTS

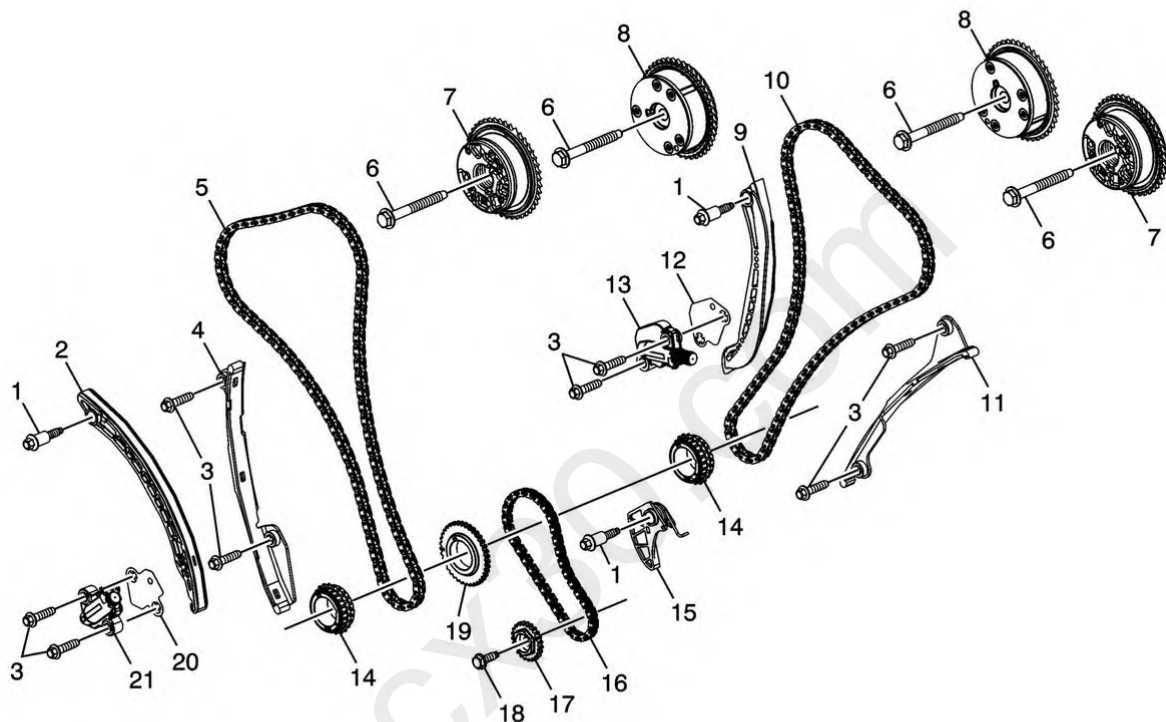


Fig. 5: Exploded View Of Camshaft Timing Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Timing Chain Guide Bolt [2x]
2	Timing Chain Guide - Right
3	Timing Chain Tensioner Bolt [8x]
4	Timing Chain Guide - Right
5	Timing Chain - Right
6	Camshaft Position Actuator Bolt [4x]
7	Camshaft Position Actuator - Exhaust
8	Camshaft Position Actuator - Intake
9	Timing Chain Guide - Left

Callout	Component Name
10	Timing Chain - Left
11	Timing Chain Guide - Left
12	Timing Chain Tensioner Gasket
13	Timing Chain Tensioner - Left
14	Timing Chain Crankshaft Sprocket
15	Timing Chain Tensioner
16	Oil Pump Timing Chain
17	Oil Pump Sprocket
18	Oil Pump Drive Bolt
19	Crankshaft Sprocket
20	Timing Chain Tensioner Gasket
21	Timing Chain Tensioner - Right

ENGINE FRONT COVER

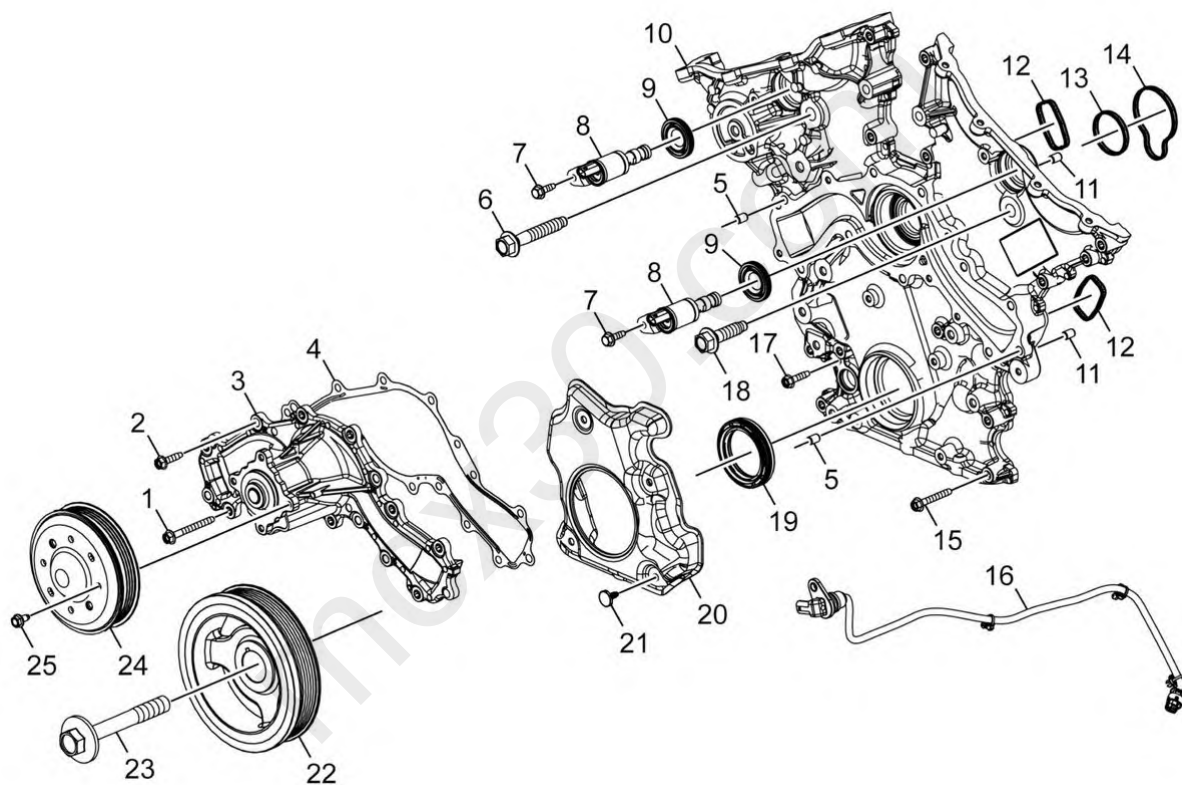


Fig. 6: Exploded View Of Engine Front Cover Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Water Pump Bolt [5x] M6 x 20
2	Water Pump Bolt [9x] M6 x 60
3	Water Pump Housing
4	Water Pump Gasket
5	Water Pump Locating Pin [2x]
6	Engine Front Cover BoltM12 x 75
7	Camshaft Position Actuator Control Valve Bolt [2x]
8	Camshaft Position Actuator Control Valve [2x]

Callout	Component Name
9	Camshaft Position Actuator Control Valve Seal [2x]
10	Engine Front Cover
11	Engine Front Cover Locating Pin [2x]
12	Water Pump Seal [2x]
13	Water Pump Seal
14	Water Pump Seal
15	Oil Pump Flow Control Solenoid Valve Wire
16	Engine Front Cover Bolt
17	Harness Connector Bolt
18	Engine Front Cover Bolt M12 x 50
19	Crankshaft Front Oil Seal
20	Engine Front Cover Insulator
21	Engine Front Cover Retainer [4x]
22	Crankshaft Balancer
23	Crankshaft Balancer Bolt
24	Water Pump Pulley
25	Water Pump Pulley Bolt [4x]

CAMSHAFT CARRIER COMPONENTS

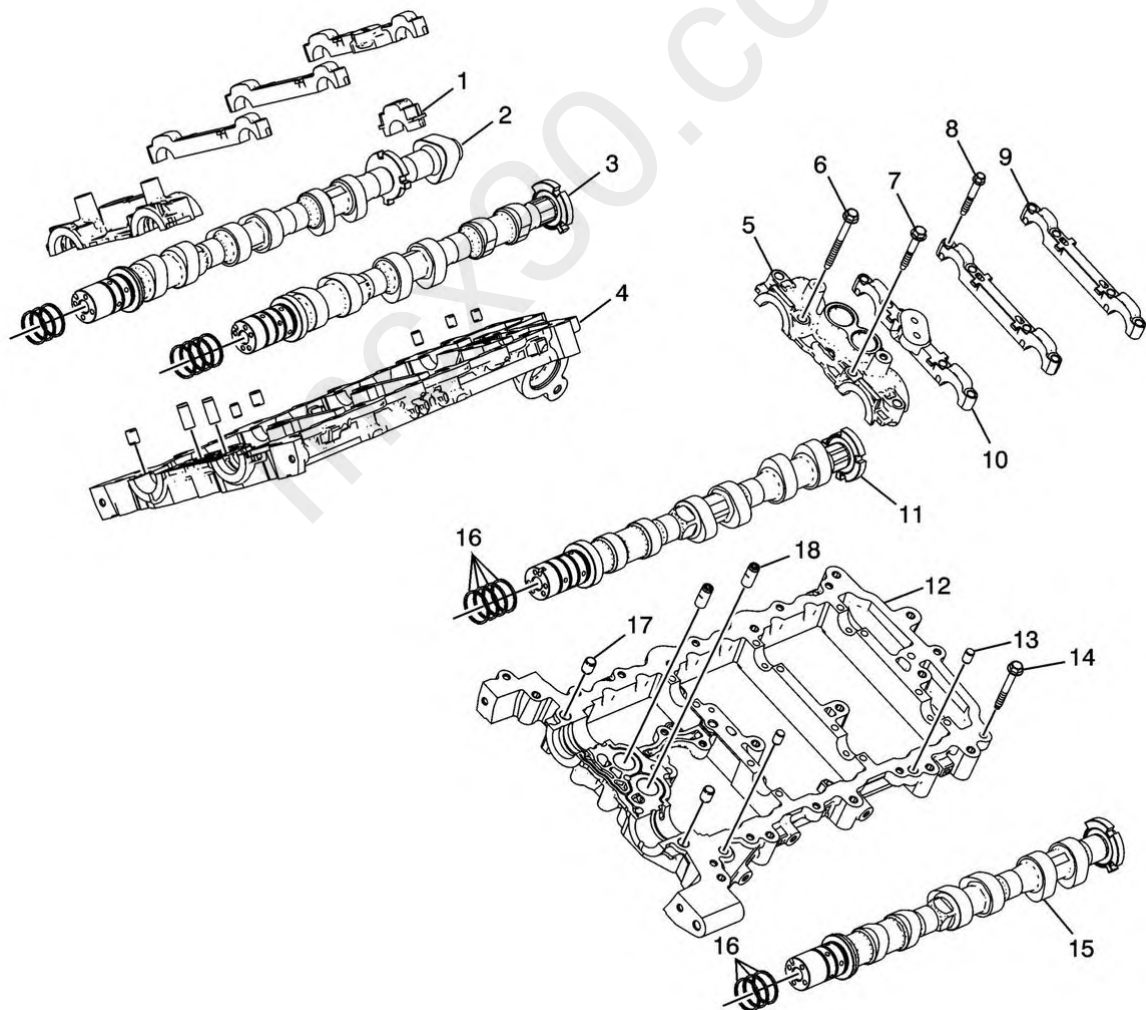


Fig. 7: Exploded View Of Camshaft Carrier Components
 Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Camshaft Bearing Cap - Intermediate
2	Exhaust Camshaft - Right
3	Intake Camshaft - Right
4	Camshaft Carrier - Right
5	Camshaft Bearing Cap
6	Camshaft Bearing Cap Bolt [8x]
7	Camshaft Bearing Cap Bolt [8x]
8	Camshaft Bearing Cap Bolt [26x]
9	Camshaft Bearing Cap
10	Camshaft Bearing Cap
11	Intake Camshaft - Left
12	Camshaft Carrier - Left
13	Dowel Pin
14	Camshaft Carrier Bolt
15	Exhaust Camshaft - Left
16	Camshaft Oil Seal Ring
17	Dowel Pin
18	Engine Oil Manifold Check Valve

CYLINDER HEAD ASSEMBLIES

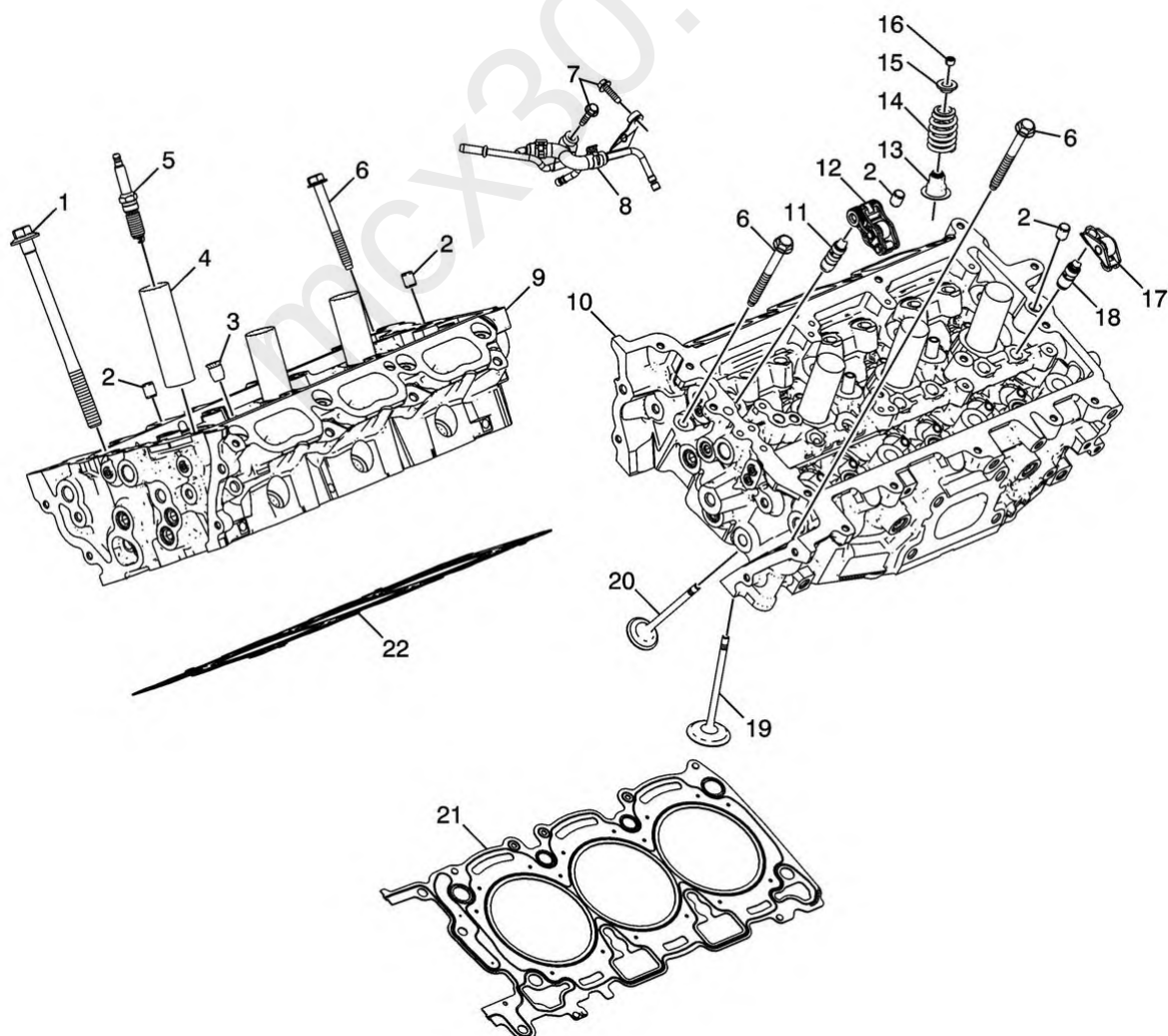


Fig. 8: Exploded View Of Cylinder Head Assemblies Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Cylinder Head Bolt [16x]
2	Dowel Pin
3	Cylinder Head Oil Gallery Plug
4	Spark Plug Wire Sleeve
5	Spark Plug
6	Cylinder Head Bolt [3x]
7	Engine Coolant Air Bleed Pipe Bolt [2x]
8	Engine Coolant Air Bleed Pipe
9	Cylinder Head - Left
10	Cylinder Head - Right
11	Dual Feed Hydraulic Valve Adjustor
12	Valve Rocker Switching Arm
13	Valve Stem Oil Seal
14	Valve Spring
15	Valve Spring Cap
16	Valve Stem Key
17	Valve Rocker Arm
18	Hydraulic Valve Lash Adjuster
19	Intake Valve
20	Exhaust Valve
21	Cylinder Head Gasket - Right
22	Cylinder Head Gasket - Left

OIL PAN ASSEMBLY

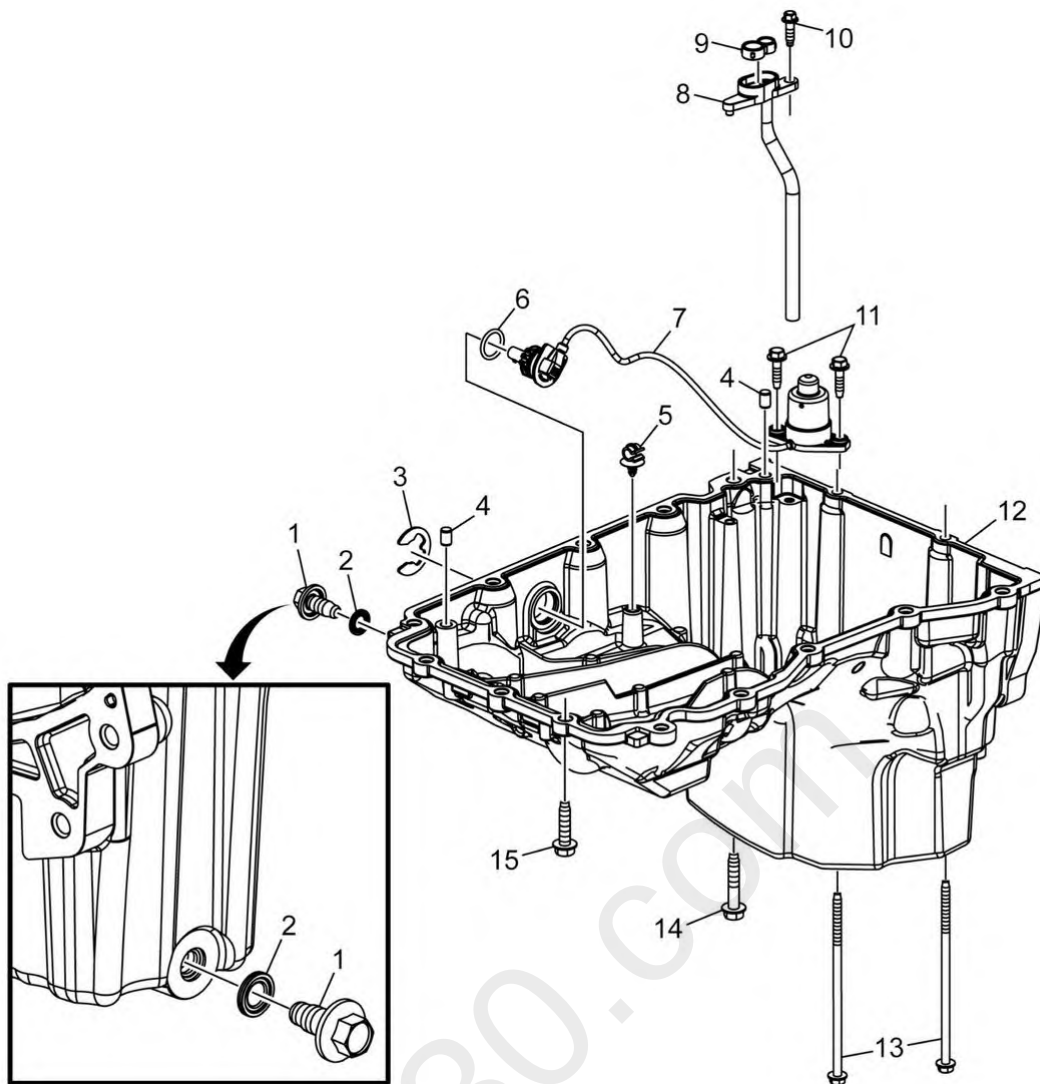


Fig. 9: Exploded View Of Oil Pan Assembly Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Oil Pan Drain Plug
2	Oil Pan Drain Plug Seal
3	Engine Oil Level Switch Clip
4	Dowel Pin [2x]
5	Engine Oil Level Sensor Lead Clip
6	Engine Oil Level Indicator Switch O-Ring Seal
7	Engine Oil Level Indicator Switch
8	Positive Crankcase Ventilation Oil Separator Drain Pipe - Model Dependent
9	Positive Crankcase Ventilation Oil Separator Drain Seal
10	Positive Crankcase Ventilation Oil Separator Drain Pipe Bolt
11	Engine Oil Level Indicator Switch Bolt [2x]
12	Oil Pan
13	Oil Pan Bolt [2x]
14	Oil Pan Bolt
15	Oil Pan Bolt [12x]

OIL PUMP ASSEMBLY

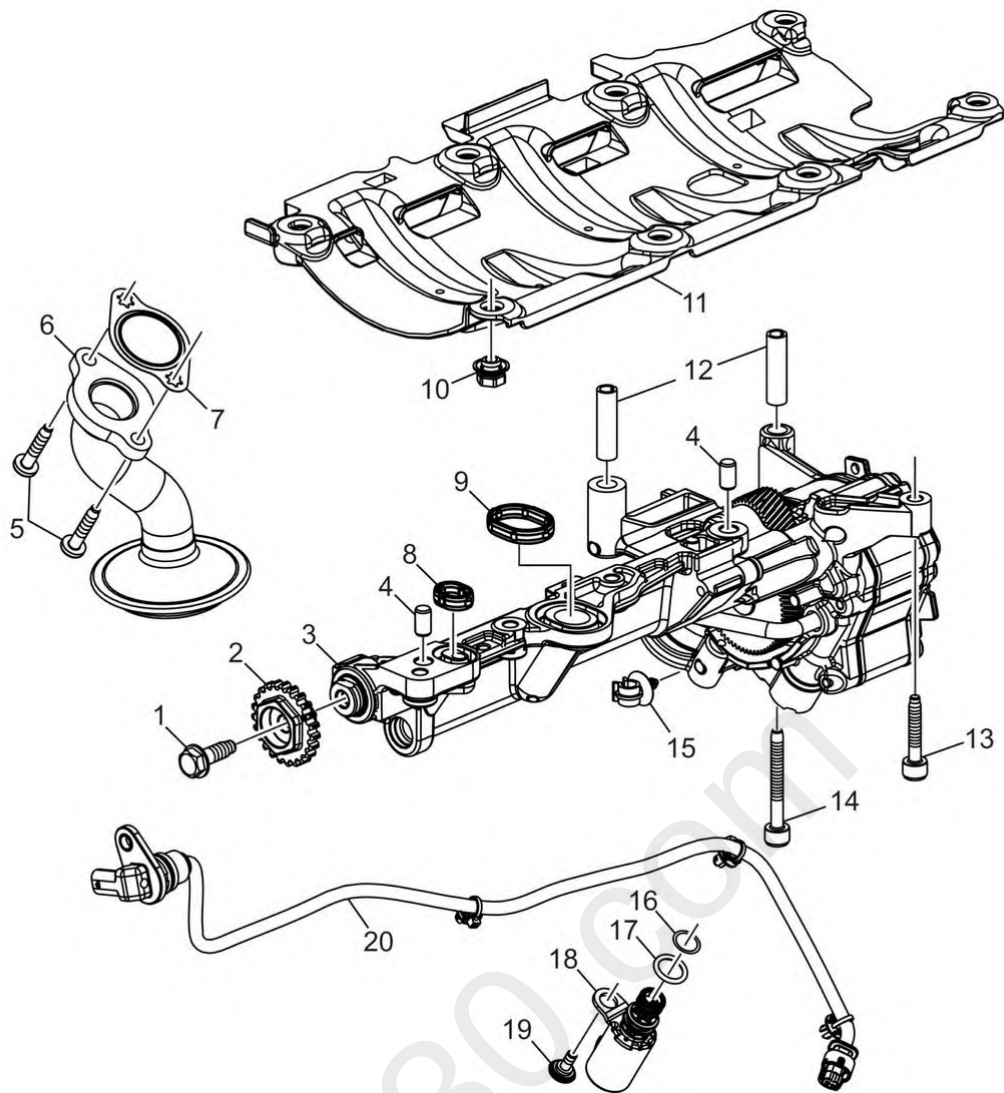


Fig. 10: Exploded View Of Oil Pump Assembly Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Oil Pump Sprocket Bolt
2	Oil Pump Sprocket
3	Oil Pump
4	Dowel Pin [2x] - Not Serviceable
5	Oil Pump Suction Pipe Bolt [2x]
6	Oil Pump Suction Pipe
7	Oil Pump Suction Pipe Gasket
8	Oil Pump Housing Passage Seal
9	Oil Pump Housing Passage Seal
10	Crankshaft Oil Deflector Nut [8x]
11	Crankshaft Oil Deflector
12	Spacer
13	Oil Pump Bolt [4x]
14	Oil Pump Bolt [2x]
15	Oil Pump Flow Control Solenoid Valve Wire Clip
16	Oil Pump Flow Control Valve Seal O-Ring
17	Oil Pump Flow Control Valve Seal

Callout	Component Name
18	Oil Pump Flow Control Valve
19	Oil Pump Flow Control Solenoid Valve Bolt
20	Oil Pump Flow Control Solenoid Valve Wiring

ENGINE BLOCK COMPONENTS

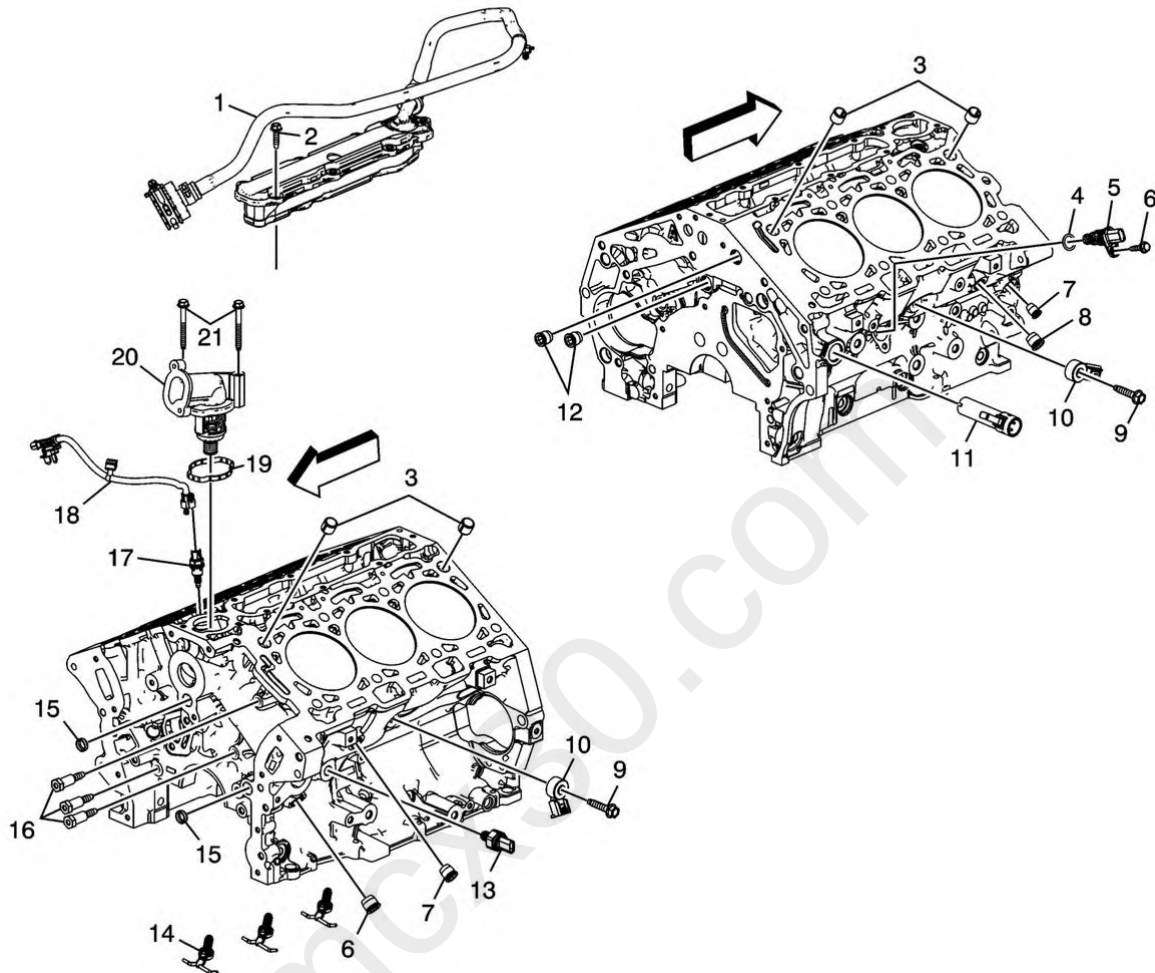


Fig. 11: Exploded View Of Engine Block Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Positive Crankcase Ventilation Oil Separator
2	Positive Crankcase Ventilation Oil Separator Bolt [6x]
3	Cylinder Head Locating Pin
4	Crankshaft Position Sensor Seal
5	Crankshaft Position Sensor
6	Crankshaft Position Sensor Bolt
7	Engine Block Core Hole Plug M16 x 16.25
8	Engine Block Core Hole Plug M18 x 16.25
9	Knock Sensor Bolt [2x]
10	Knock Sensor
11	Engine Coolant Heater

Callout	Component Name
12	Engine Block Oil Gallery Plug M16 x 16.25
13	Engine Oil Pressure Sensor
14	Piston Oil Nozzle [3x]
15	Engine Block Oil Gallery Plug 14 mm
16	Engine Front Cover Stud [3x]
17	Engine Coolant Temperature Sensor
18	Engine Coolant Temperature Sensor Wire
19	Engine Coolant Thermostat Seal
20	Engine Coolant Thermostat Housing
21	Engine Coolant Thermostat Housing Bolt [2x]

PISTON, RINGS, BEARINGS AND CONNECTING ROD ASSEMBLY

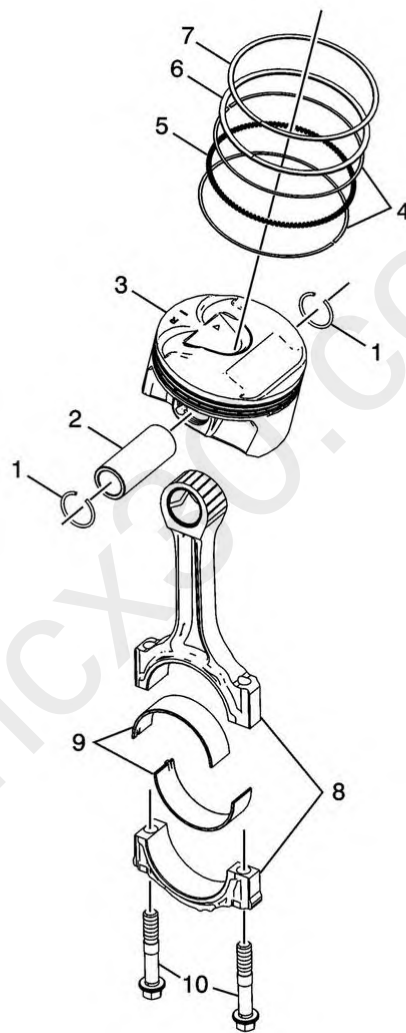


Fig. 12: Exploded View Of Piston, Rings, Bearings And Connecting Rod Assembly Components
 Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Piston Pin Retainer
2	Piston Pin
3	Piston
4	Piston Oil Ring Rail

Callout	Component Name
5	Piston Oil Ring Rail Spacer
6	Piston Compression Ring - Lower
7	Piston Compression Ring - Upper
8	Connecting Rod
9	Connecting Rod Bearing
10	Connecting Rod Bolt [2x]

ENGINE BLOCK ASSEMBLY

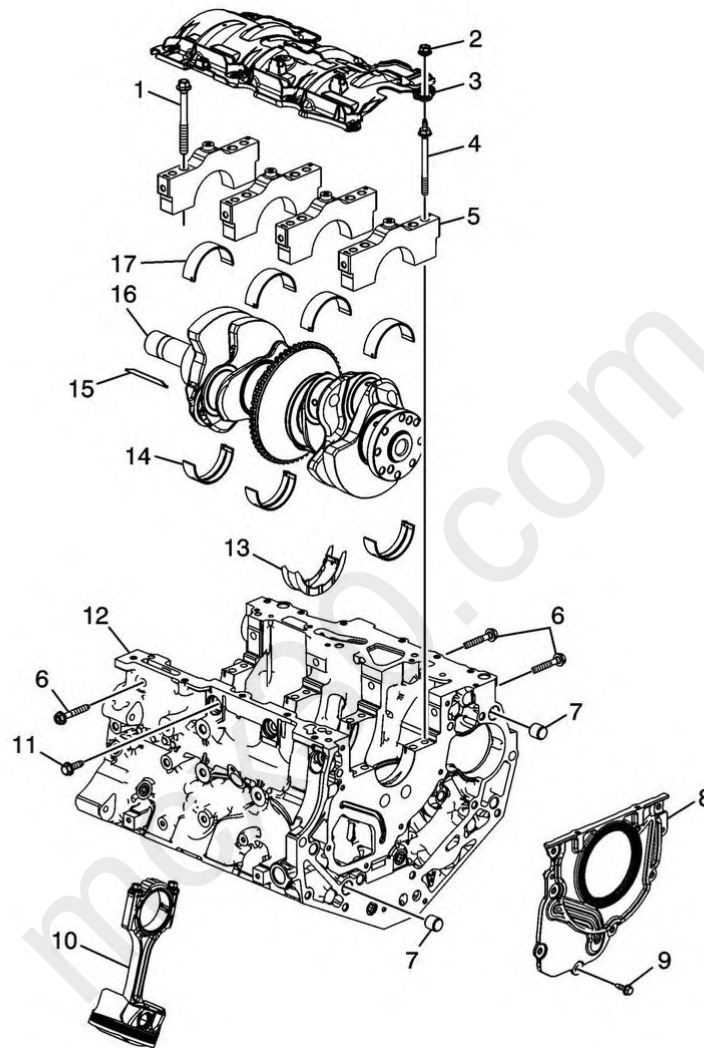


Fig. 13: Exploded View Of Engine Block Assembly Components

Courtesy of GENERAL MOTORS COMPANY

NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
1	Crankshaft Bearing Cap Bolt [8x]
2	Crankshaft Oil Deflector Nut [8x]
3	Crankshaft Oil Deflector
4	Crankshaft Bearing Cap Bolt [8x]
5	Crankshaft Bearing Cap
6	Crankshaft Bearing Cap Bolt [3x]
7	Crankshaft Rear Oil Seal Housing Locating Pin
8	Crankshaft Rear Oil Seal Housing

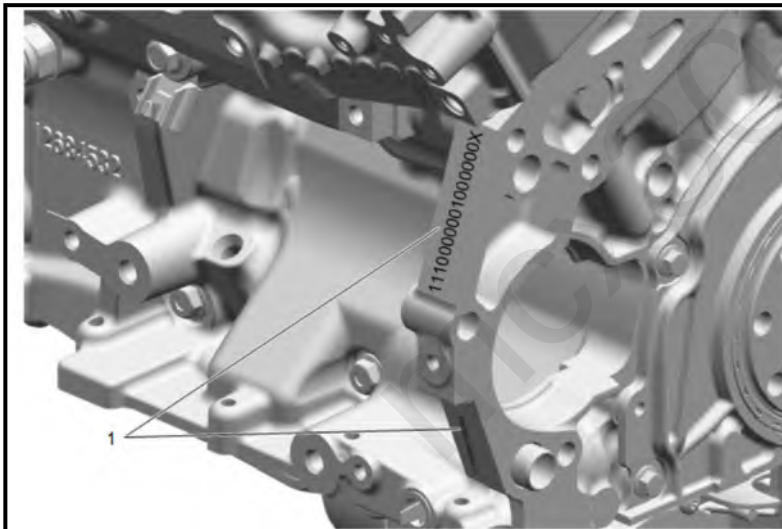
Callout	Component Name
9	Crankshaft Rear Oil Seal Housing Bolt [8x]
10	Piston and Connecting Rod Assembly
11	Crankshaft Bearing Cap Bolt
12	Engine Block
13	Crankshaft Thrust Upper Bearing
14	Crankshaft Upper Bearing
15	Crankshaft Balancer Key
16	Crankshaft
17	Crankshaft Lower Bearing

ENGINE IDENTIFICATION

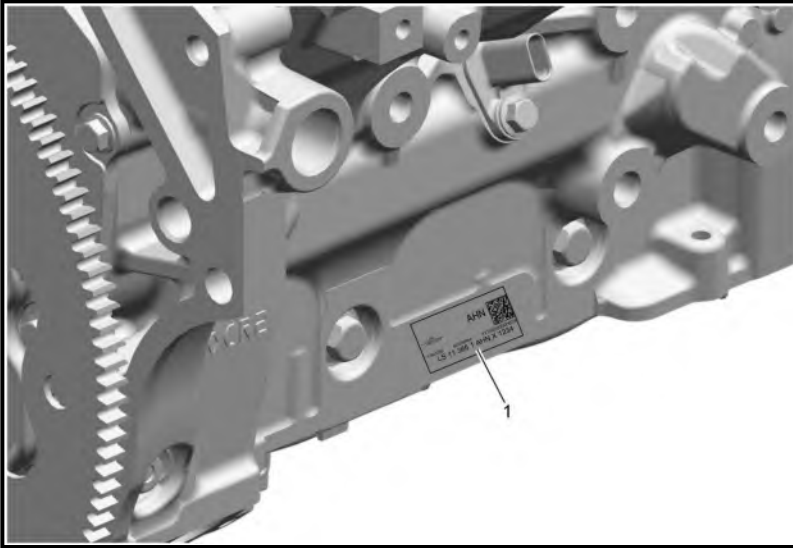
VEHICLE IDENTIFICATION NUMBER

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).



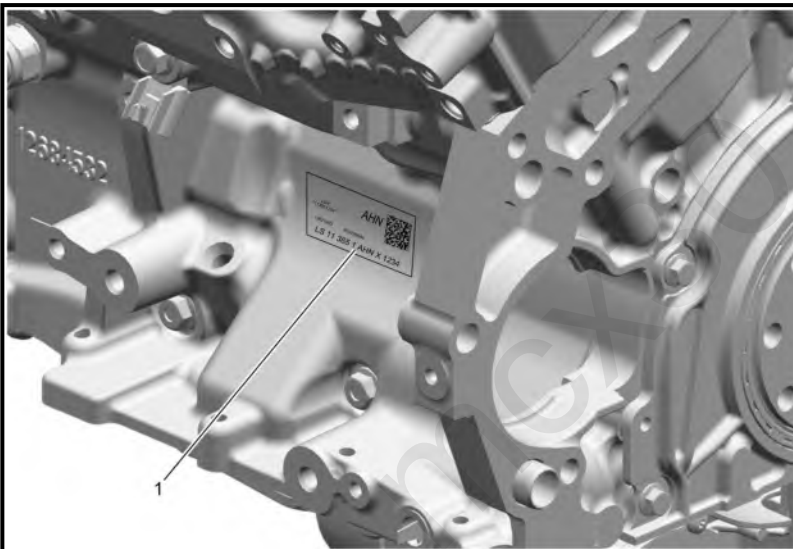
The engine block is marked with the VIN on a pad area on the left rear side (1).



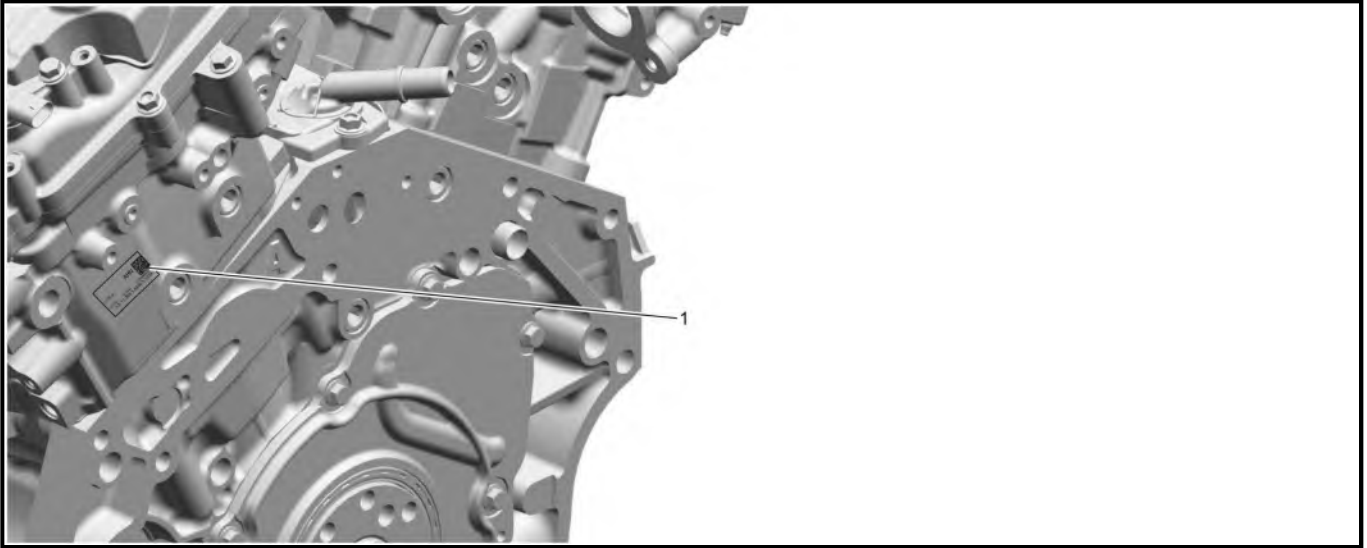
The engine block is marked with the VIN on a pad area on the center lower right side (1).

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.



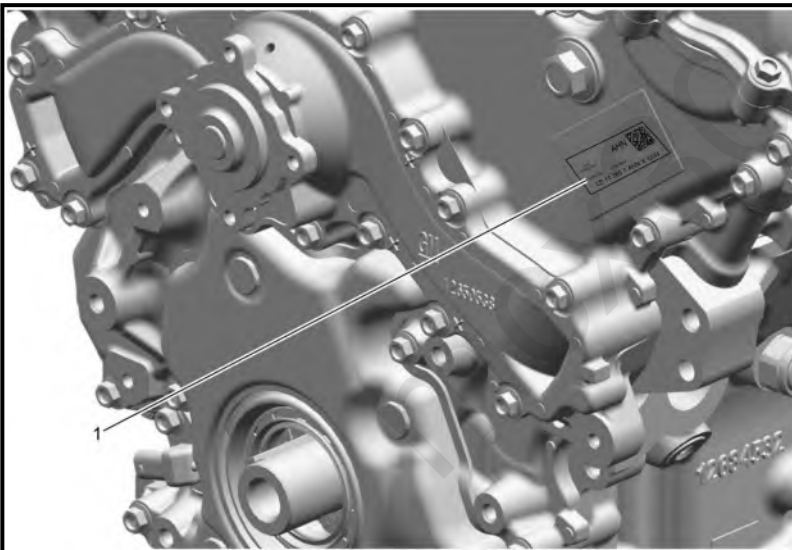
One engine traceability label (1) is located on the left rear side of the engine block. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.



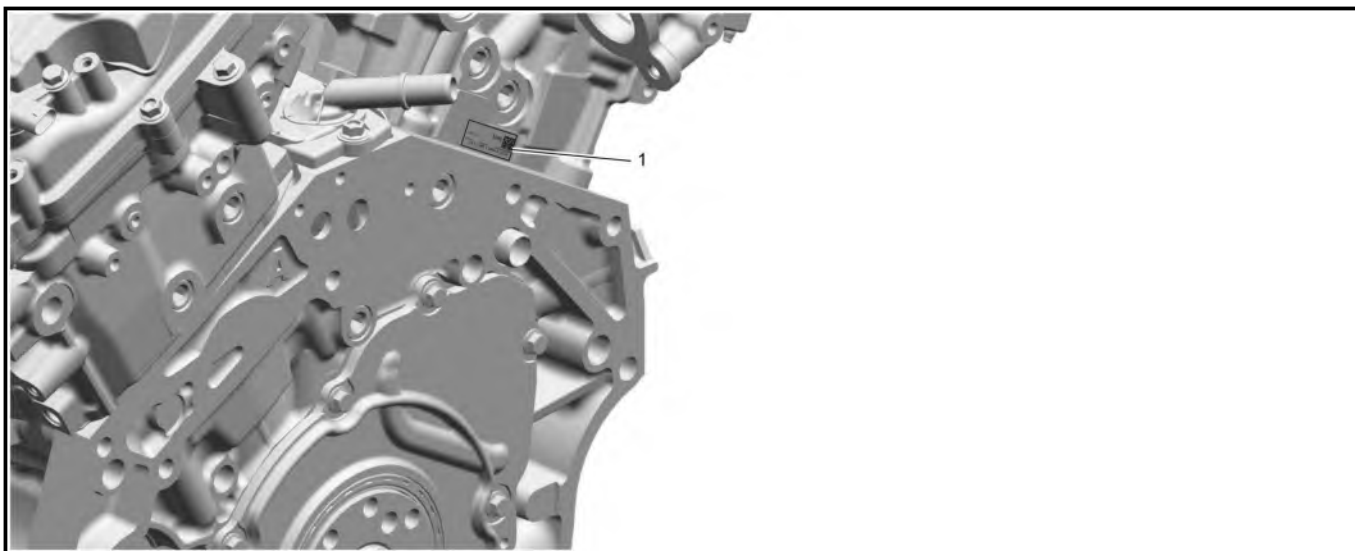
Another engine traceability label (1) is located on the rear of the left cylinder head. This label is used in engine and vehicle assembly plants and is not intended to be permanent. If it is missing refer back to the engine block VIN pad for the permanent ID.

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.



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.



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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