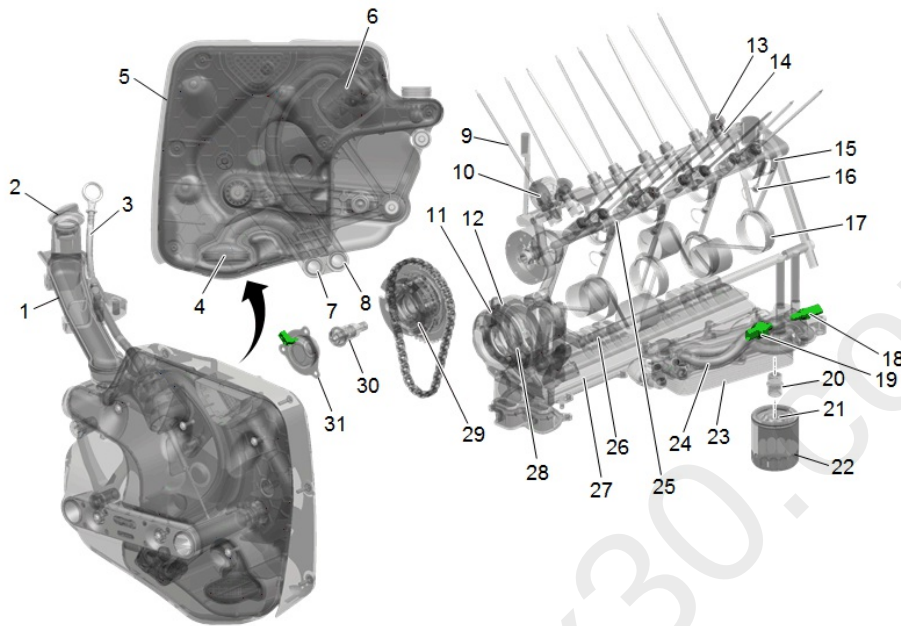


2022 CHEVROLET CORVETTE SERVICE MANUAL

- SEARCH

1. Engine/Propulsion
2. Engine Mechanical - 6.2L (LT2)
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Lubrication Description



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- (4) Oil Pick Up Screen - Oil Tank
- (7) Oil Tank Outlet

Engine lubrication pressure is supplied by a two-stage oil pump assembly that is mounted to the front of the engine block and is driven directly off of the crankshaft sprocket. This oil pump assembly consists of a primary vane-type variable displacement pump (11) and a secondary set of gerotor-style pumps (12). The primary vane-style pump, located at the rear of the pump housing, rotates clockwise and draws oil from a pickup in the bottom of the oil tank (4) via a transfer tube that is connected to the oil tank outlet (7) and passes through the engine front cover. The primary pump contains a pressure relief valve that protects the oil filter, mounted on the engine oil cooler, from over pressurization during cold engine start up. If system pressure exceeds 600 kPa (87 psi) the pressure relief valve will open and exhaust oil back into the oil pan. The front or forward gear set is the secondary pump set (12) and it scavenges oil from the oil pan (26) via two locations in the oil pump screen (26) located at the bottom of the oil pan. Oil scavenged from the oil pan is delivered back to the oil tank (5) via a transfer tube that passes through the engine front cover and enters the inlet at the bottom of the oil tank (8).

The oil is pressurized as it passes through the primary pump and is sent through the engine block lower oil gallery (25) to the liquid-to-liquid (engine coolant to oil) engine oil cooler (22). Oil exits the engine oil cooler, past the engine oil pressure sensor (19), and enters the full flow oil filter (21) where harmful contaminants are removed. A bypass valve (20) is incorporated into the oil filter, which permits oil flow in the event the filter becomes restricted.

Oil exits the oil filter (21) and is then directed to the upper main oil galleries (24). Oil from the left upper oil gallery is directed to the crankshaft bearings (15), valve lifter bores for cylinders 1, 3, 5, and 7, camshaft bearings (15), and piston oil nozzles (16) for cylinders 1, 3, 5, and 7. Oil from the right upper oil gallery is directed to the valve lifter bores for cylinders 2, 4, 6, and 8 and piston oil nozzles (16) for cylinders 2, 4, 6, and 8. The piston oil nozzle assemblies are designed to provide oil to the bottom side of the piston for cooling purposes. The piston oil nozzles have an internal check ball that is held in the normally closed position by the spring until system oil pressure exceeds 300 kPa (43.5 psi).

An oil passage at camshaft bearing location 1 permits oil flow to the upper rear of the primary oil pump (11). Oil is pumped through this passage and provides hydraulic pressure to the first stage oil pressure cavity (27) in the primary oil pump (11). Hydraulic pressure in the first stage pressure cavity regulates engine oil pressure and can help reduce the load on the engine during normal operating conditions.

An oil passage at camshaft bearing location 2 permits oil flow into the center of the camshaft. Oil enters the camshaft exiting at the front and into the camshaft position (CMP) actuator solenoid valve (29). The CMP valve spool position is controlled by the engine control module (ECM) and CMP magnet (30). When commanded by the ECM, the CMP magnet (30) repositions the CMP actuator solenoid valve spool directing pressurized oil into the CMP actuator (28) to control valve timing.

Oil from the both upper galleries is also delivered to the four Active Fuel Management Valve Lifter Oil Control Solenoid Valves (14) located in bores in the engine valley. With active fuel management activated, the ECM commands, based on driving conditions, some combination of the 4 oil control solenoid valves to open, directing oil through the engine block oil galleries to the intake and exhaust AFM valve lifters (13), for cylinders 2, 3, 5, and 8.

Oil exits the valve lifters (13) and is then pumped through the pushrods (9) to lubricate the valve rocker arms and valve stems. Oil returns to the oil pan to be delivered to the oil tank (5). The upper oil pump (10), mounted to the top front of the engine block, scavenges any residual oil in the engine valley, via an oil pick up screen mounted in the engine valley, and delivers it to the oil tank inlet (7). Incorporated within the engine oil tank assembly are the oil level indicator (3), oil fill cap (25), positive crankcase ventilation (PCV) centrifugal air/oil separator (6), and an oil pick up screen (4).

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