# 350 Engine Parts Diagram

## The Ultimate Guide to Understanding the 350 Engine Parts Diagram

For decades, the Chevy 350 small-block V8 has stood as one of the most beloved, durable, and widely modified engines in automotive history. Whether you are restoring a classic car, building a performance motor for the track, or simply trying to keep your daily driver running smoothly, few tools are as valuable as a well-labeled **350 engine parts diagram**. Understanding what every component does and how it connects to the next is the foundation of competent engine work. This guide will walk you through the major systems of the 350 engine, breaking down the parts diagram into digestible sections so you can approach your next project with confidence. From the rotating assembly deep inside the block to the intricate pathways of the cooling and lubrication systems, we will cover it all.

## The Core Architecture: Short Block Components

The short block is the foundation of any 350 engine. When you look at a **350 engine parts diagram**, the short block represents everything from the oil pan up to the deck surface where the cylinder heads bolt on. This section contains the rotating and reciprocating assemblies that convert combustion pressure into rotational energy.

### The Engine Block

The engine block for the Chevy 350 is typically cast iron, though some aftermarket versions use aluminum. It contains the five main bearing journals that support the crankshaft, the lifter bores for the valvetrain, and the water jackets that circulate coolant. The block is identified by casting numbers located on the rear flange near the bellhousing. When studying a parts diagram, notice the water passages around each cylinder, which are critical for even cooling.

### The Crankshaft and Main Bearings

The crankshaft converts the linear motion of the pistons into rotary motion. The 350 crankshaft has a stroke of 3.48 inches and rides on five main bearings. The main bearing caps, usually four-bolt or two-bolt depending on the application, hold the crankshaft securely in place. A **350 engine parts diagram** will show the oil passages drilled through the crankshaft that supply oil to the connecting rod journals.

### Connecting Rods and Pistons

Connecting rods link the pistons to the crankshaft. Factory 350 connecting rods are made of forged steel or powdered metal, depending on the year and application. The pistons themselves are typically cast aluminum with two compression rings and one oil control ring. The wrist pin connects the piston to the connecting rod. When looking at a diagram, note the direction arrows stamped on the pistons, which must face forward during assembly.

### Camshaft and Timing Set

The camshaft is responsible for opening and closing the valves at the correct time. It is driven by the timing chain and sprockets, which connect to the crankshaft. The timing chain must maintain precise synchronization between the crankshaft and camshaft. If the chain stretches or the gears wear, the engine will lose performance. Every reliable **350 engine parts diagram** will show the timing marks that must be aligned during installation.

## The Cylinder Heads and Valvetrain

The cylinder heads sit atop the block and contain the combustion chambers, valves, and passages for air and fuel flow. The valvetrain includes all the components that open and close the valves based on the camshaft profile.

### Cylinder Head Construction

The 350 engine commonly uses cast iron cylinder heads, though aluminum heads are popular for performance builds. Key features visible on a parts diagram include the intake and exhaust ports, the combustion chamber volume, and the valve seats. The head gasket seals the interface between the block and the head, containing both combustion pressure and coolant.

 

### Valves and Springs

Each cylinder has an intake valve and an exhaust valve. The intake valve is typically larger to allow more air-fuel mixture into the cylinder. Valve springs return the valves to their closed position after the camshaft lobe pushes them open. Retainers and keepers (also called valve locks) hold the springs and valves together. When inspecting a **350 engine parts diagram**, you will see the valve stem seals that control oil consumption.

### Pushrods and Rocker Arms

The pushrods transfer motion from the camshaft lifters up to the rocker arms. The rocker arms pivot on a shaft or stud and push down on the valve stems. The rocker arm ratio (typically 1.5:1 on stock 350 engines) multiplies the camshaft lift. Adjustable rocker arms allow for precise valve lash settings, while factory setups often use self-aligning rockers.

## The Intake and Exhaust Systems

The intake and exhaust systems manage the flow of air into the engine and the removal of combustion gases. These components are prominently featured in any **350 engine parts diagram** because they directly affect performance and efficiency.

### Intake Manifold

The intake manifold distributes the air-fuel mixture from the carburetor or throttle body to each cylinder. In a stock 350, the intake manifold is cast iron, but aftermarket aluminum manifolds are common for weight savings and better airflow. The manifold has a water crossover passage at the front that connects the two cylinder head coolant ports. A diagram will show the runner length and plenum volume, which influence torque and horsepower characteristics.

### Carburetor or Fuel Injection

While older 350 engines used carburetors, later models transitioned to throttle body injection or tuned port injection. The carburetor or throttle body mounts on top of the intake manifold and regulates the amount of air and fuel entering the engine. Understanding this part of the diagram is essential for diagnosing starting and drivability issues.

### Exhaust Manifolds and Headers

Exhaust manifolds collect the spent gases from each cylinder and direct them into the exhaust system. Cast iron manifolds are durable but restrictive. Performance enthusiasts often replace them with tubular headers, which improve exhaust scavenging. A **350 engine parts diagram** will show the bolt pattern and port alignment for proper sealing.

## The Lubrication System

Without proper lubrication, a 350 engine will fail quickly. The lubrication system is a closed loop that circulates oil under pressure to every moving part.

### Oil Pan and Pickup Tube

The oil pan sits at the bottom of the engine and holds the oil supply. The pickup tube extends into the pan and draws oil into the pump. The pan also contains a baffle system to prevent oil starvation during hard acceleration or cornering. A diagram will show the pan gasket surface and drain plug location.

### Oil Pump

The oil pump is typically mounted on the rear main bearing cap and is driven by the distributor shaft. It pressurizes the oil and sends it through passages to the crankshaft, camshaft, and valvetrain. The pressure relief valve prevents excessive pressure from damaging the system.

### Oil Filter and Passages

The oil filter mounts to the block and cleans contaminants from the oil. Filtered oil then flows through galleys drilled into the block to reach all critical areas. When reviewing a **350 engine parts diagram**, trace the oil path from the pump through the filter and into the main oil gallery.

## The Cooling System

The cooling system maintains optimal operating temperature and prevents the engine from overheating. The 350 engine relies on a water pump, thermostat, and radiator to manage heat.

### Water Pump

The water pump is driven by the serpentine belt or V-belt and circulates coolant through the engine block and cylinder heads. It has an impeller that pushes coolant through the system. A diagram will show the bypass hose fitting and the mounting bolts that secure it to the timing cover.

### Thermostat and Housing

The thermostat is located at the front of the intake manifold or cylinder head. It regulates coolant flow based on temperature. When the engine is cold, the thermostat remains closed to speed warm-up. Once operating temperature is reached, it opens and allows coolant to flow to the radiator. A **350 engine parts diagram** will clearly show the thermostat placement and the bypass circuit.

### Radiator and Hoses

While not part of the engine block itself, the radiator connects to the engine via upper and lower hoses. The lower hose carries cool coolant from the radiator to the water pump, while the upper hose returns hot coolant to the radiator. The heater hoses tap into the system to provide cabin heat.

## The Ignition System

The ignition system provides the spark that ignites the air-fuel mixture. The 350 engine uses a distributor-based system or, in newer models, a distributorless ignition system.

### Distributor

The distributor contains the rotor and cap that direct high-voltage current to each spark plug in the correct firing order. It is driven by the camshaft and must be properly timed for the engine to run correctly. Firing order for a Chevy 350 is 1-8-4-3-6-5-7-2. A **350 engine parts diagram** will show the distributor location and the vacuum advance canister.

### Spark Plugs and Wires

Spark plugs thread into the cylinder heads and provide the spark gap where combustion begins. Spark plug wires carry high voltage from the distributor cap to each plug. Proper routing of spark plug wires is essential to avoid crossfire and electromagnetic interference with other sensors.

### Ignition Coil and Control Module

The ignition coil steps up battery voltage to the thousands of volts needed to jump the spark plug gap. On older 350 engines, the coil mounts on the distributor or intake manifold. Electronic control modules replaced points and condensers in later models for more reliable timing and spark energy.

 

## Accessory Drive Systems

The serpentine belt or V-belt system drives the alternator, power steering pump, air conditioning compressor, and water pump. A **350 engine parts diagram** often includes the belt routing illustration because incorrect belt installation can cause rapid wear or accessory failure.

### Alternator and Power Steering Pump

The alternator charges the battery and powers the electrical system. The power steering pump provides hydraulic assist for steering. Both mount to brackets on the front of the engine and are driven by the belt. The belt tensioner ensures proper grip without slipping.

### Harmonic Balancer

The harmonic balancer, also called the crankshaft damper, mounts on the front of the crankshaft. It dampens torsional vibrations that can damage the crankshaft over time. The balancer also has timing marks that are used to set ignition timing with a timing light. Every accurate **350 engine parts diagram** will show this component clearly.

## Practical Tips for Using a 350 Engine Parts Diagram

Understanding a **350 engine parts diagram** goes beyond memorizing component names. It is a practical tool for disassembly, assembly, and troubleshooting. When you are rebuilding a 350, print the diagram and keep it near your workbench. Use it to label parts as you remove them, especially bolts and fasteners that differ in length and thread pitch. Pay attention to torque specifications listed in the service manual that correspond to each part on the diagram.

### Common Mistakes to Avoid

1. **Ignoring the firing order**: Always verify the distributor cap and plug wire routing against the diagram.
2. **Misaligning timing marks**: Double-check the camshaft and crankshaft timing marks before installing the timing chain.
3. **Overtightening bolts**: Follow the torque sequence and specifications for head bolts, main bearing caps, and intake manifold fasteners.
4. **Overlooking oil passage plugging**: Ensure all oil galley plugs are installed correctly to maintain oil pressure.

## Conclusion

The Chevy 350 engine is a masterpiece of engineering that has powered millions of vehicles across decades. Whether you are troubleshooting a rough idle, planning a high-horsepower build, or simply trying to understand what is under the hood, a reliable **350 engine parts diagram** is your roadmap to success.