

# INSTRUCTIONS

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## 289-6501 - Small Block Chevy HEI Distributor

### Installation Instructions

**NOTE:** This distributor fits Gen I small block Chevy engine displacements from 262ci through 400ci and Gen II (Mark IV) big block Chevy engine displacements from 396ci to 454ci. This distributor will **NOT** fit "tall deck" big block applications or engines that use a governor.



**NOTE:** The included distributor gear is designed for iron hydraulic or solid flat tapped camshafts. Consult your cam manufacturer to determine gear compatibility. Speedway Motors carries a selection of bronze, melonized, and steel gears for proper camshaft compatibility.

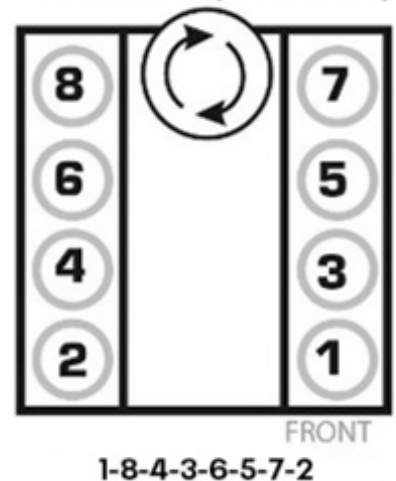
**NOTE:** This distributor requires a single 12-volt wire that is hot in "START" and "RUN" key positions. On GM ignition switches this is typically a pink wire. Any resistance wire (usually connected inline between the firewall harness connection point and the ignition coil) or ballast resistor **MUST** be removed or bypassed. If desired you can use a standard automotive relay, triggered by the factory resistance wire, to provide 12-volts directly from the battery so as to not disturb under dash wiring.

### Pre-Installation Checks:

Before you begin installation on a running vehicle confirm and note base timing settings. Note the general position of the vacuum advance cannister as well so that you have sufficient room to rotate the distributor for timing adjustments. Bring your engine's #1 cylinder (driver side forward most cylinder) to top dead center (TDC) by using the timing marks on your crankshaft damper and inspecting piston location with the spark plug removed. You can do this with a remote starter button or by turning the crankshaft with a ratchet. You can use your thumb over the #1 cylinder spark plug hole to feel engine compression as you approach TDC. Once TDC has been confirmed note the location of the distributor's rotor tip (which will be pointing to cylinder #1 post terminal on the old distributor cap).

The small block and big block Chevy share the same firing order. Note the firing order and cylinder numbers in the diagram below (Fig 1) so that your plug wires can be transferred to the new distributor or new spark plug wires installed if your current spark plug wires are not compatible (this distributor uses male/HEI distributor terminal compatible plug wires).

Small Block/Big Block Chevy



**Fig 1.** GM small block and big block firing order: 1-8-4-3-6-5-7-2 (clockwise rotor rotation)

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### Removal of Old Distributor (if applicable):

1. If this is a new long block or fresh engine build with no distributor installed, verify cylinder #1 is at TDC and then continue to the next step of instructions. Otherwise, begin the removal of the old distributor by disconnecting the vehicle's battery negative terminal and disconnecting all vehicle wiring from the distributor and ignition coil.
2. Remove the ignition coil and mounting bracket from the engine if your GM vehicle is pre-HEI and uses a standalone ignition coil, as it will not be used with the new HEI-style distributor.
3. Note the spark plug wire order if reusing the plug wires installed and then disconnect them from the distributor cap.
4. If not already noted previously, note the distributor's rotor position and the terminal on the cap it points to.
5. Remove the vacuum advance vacuum line if equipped.
6. Remove the distributor hold down bolt and clamp and then remove the distributor.
7. Note that the rotor and distributor shaft will rotate as you remove the distributor due to the helical cut distributor gear mesh with the camshaft gear.
8. Once the distributor has been removed do **NOT** make any attempt to rotate the engine by hand or with the starter/ignition switch, as this will take the engine off TDC.

### Installation of New HEI-Style Distributor:

1. Disconnect the ignition coil wiring connector from the distributor cap, then press down and rotate the four spring loaded cap retainers to allow removal of the distributor's cap.
2. Install the distributor base gasket and lubricate the distributor's gear with clean engine oil.
3. Rotate the new distributor's shaft to position the rotor's tip in the same direction/cap terminal as the distributor that was removed. Alternatively, choose a terminal on the cap you wish to designate as your #1 cylinder and position the rotor tip to it.
4. Lower the distributor into the engine, noting that the rotor will rotate as the distributor gear meshes with the camshaft gear, thus it may take more than one attempt to get the gear mesh right to maintain the rotor position you desire. The distributor's base should be seated flush with the block. If not, you may have not properly engaged the oil pump drive shaft.
5. Confirm the distributor gear is meshed with the cam gear (the rotor will not turn by hand and the distributor body will not be flush with the block).
6. Apply light downward pressure on the distributor body while rotating the engine's crankshaft by hand clockwise until the distributor fully seats, meshing the distributor shaft with the oil pump drive. Install the hold down clamp and bolt finger tight for now.

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7. Reinstall the distributor cap by securing it with the four spring loaded retainers, ensuring the cap is seated properly, and reconnect the ignition coil wiring to the cap.

### Connecting Plug Wires and Final Wiring Steps:

If your spark plug wires are compatible with the HEI-style cap, transfer the wires from the old cap to the new cap one at a time in proper firing order rotation beginning with your cylinder #1 wire on the distributor cap terminal you designated for cylinder #1. If your wires are from an old points-based ignition you will need a set of HEI compatible plug wires. Speedway Motors offers a multitude of pre-terminated and cut to fit wire sets in several colors and diameters. We suggest swapping the new plug wires one at a time to prevent confusion or crossing up the firing order.

The HEI-style distributor has only two wire connections—BAT and TACH. BAT is where you will connect your 12-volt ignition switched wire that is hot in both START and RUN and is the only mandatory connection. TACH is for aftermarket tachometers that use the coil's negative terminal to trigger. The TACH connection can also be used for pre-1974 GM factory tachometer connections that were originally connected to the external coil's negative post. Both of these connections require insulated female spade terminals, or you can use OE-style GM terminal connector, PN 910-12343, for a cleaner appearance and more secure connection. If replacing an existing 1975 and later factory HEI distributor your original connectors will plug right in.

The original resistance wire will need to be bypassed to allow full 12-volts to the distributor's BAT connection from your ignition switch on 1974 and older vehicles that used points ignition. We recommend using 12-gauge stranded automotive wire. Alternatively, if you do not wish to modify your factory wiring or make changes to the firewall wiring connections, you can use the factory coil positive wire to trigger a standard 12-volt relay that will provide 12-volts to the distributor's BAT terminal directly from the battery. This relay can be wired using 12-gauge stranded automotive wiring as well and mounted in the engine compartment with no modifications to the original wiring. See Fig 2 for a wiring diagram. Once all wiring has been completed the battery negative terminal can be reconnected.

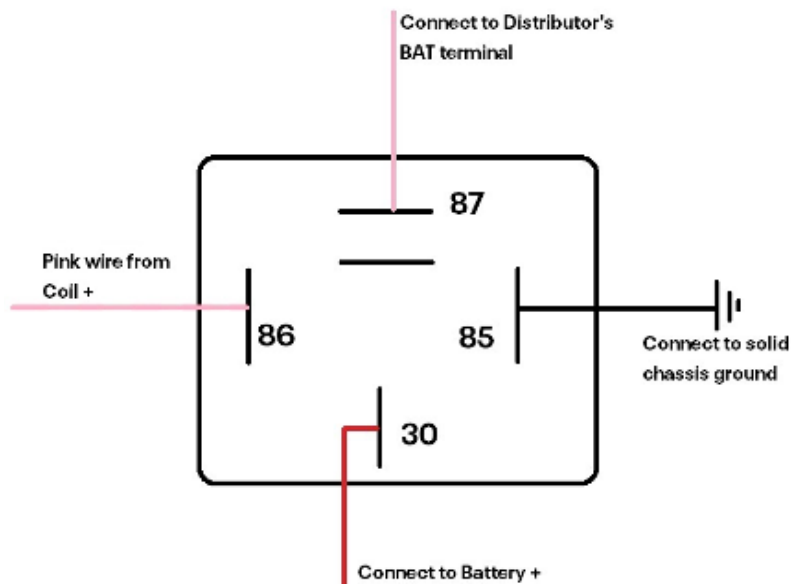


Fig 2.

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### Final Adjustments and Setting Timing:

1. Temporarily plug the distributor vacuum advance hose to the new distributor.
2. Double check plug wire connections and firing order and all wiring before starting the vehicle.
3. Check and set the vehicle's base timing. Base timing will vary with engine model year, engine modifications, and fuel octane rating. We recommend starting with 8 to 10 degrees of initial advance and work from there until you hear spark knock/ping and then back the timing off two degrees. Most engines will be happy somewhere between 10 and 14 degrees, again depending upon modifications and fuel used.
4. Once the base timing has been set, shut off the engine, tighten the distributor hold down clamp, remove the vacuum advance hose plug and reconnect the hose to the distributor's vacuum advance canister.
5. Once base timing is set you can adjust the vacuum advance to suit your application via the included hex key wrench. The wrench is placed into the vacuum advance port once the vacuum hose has been removed. Turning the vacuum advance adjuster clockwise will add timing, while turning the adjuster counterclockwise will remove timing (when vacuum is applied to the advance cannister). You can lock the vacuum advance function out by turning the adjustment counterclockwise until it stops. Just like your static base timing, you can add timing advance to the vacuum system until you hear spark knock/ping and then back the vacuum advance adjustment off until the spark knock/ping goes away under load.

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