

Installation instructions for the HEI distributor in 1972-1990 6 cylinder 232ci [3.8L] & 258ci [4.2L] AMC/Jeep engines

- 1) Disconnect the negative battery cable from the battery.
- 2) Locate the #1 cylinder spark plug wire on the distributor cap and mark the cap accordingly if it is not already identified. The engine's #1 cylinder is at the front of the engine and the cylinders are in order all the way to the back of the engine which is #6 cylinder
- 3) Remove all the spark plug wire leads and all spark plugs from the engine. Removing the spark plugs allows the engine to be turned more easily.
- 4) Using a breaker bar and the correct sized socket on the crank pulley center bolt turn the crank clockwise. Bring the timing mark on the crankshaft pulley all the way around until it is lined up with the TDC mark on the front of the engine.
- 5) Remove the distributor cap from the distributor and note the position of the rotor. It should be pointing directly at the #1 cylinder position marked on the cap. If the rotor is not pointing at the # 1 cylinder location, then reinstall the distributor cap and repeat steps #4 and #5. Once the rotor is pointing at the #1 cylinder position on the distributor cap, you now have the #1 cylinder at TDC.
- 6) Disconnect the distributor wiring harness and vacuum line from the distributor. Disconnect the wiring from the ignition coil.
- 7) Remove the distributor and ignition coil from the engine. **Note that the rotor will turn counterclockwise a small amount as you pull the old distributor out of the engine. Make a note of how much the rotor turns.** Inspect the driven gear on the bottom of the distributor. If **excessive** wear is evident, the driven gear on the new HEI distributor may not mesh with the drive gear on the camshaft. Replacing the drive gear on the camshaft is recommended when there is **excessive** wear on the driven gear of the old distributor. Please note that **excessive** wear on these gears is not a common occurrence, but it is better to inspect the gear before reassemble to prevent issues later.
- 8) With a light illuminate the well in the engine that the distributor came out of. You will see a slot in the top of oil pump drive shaft down in the center of the well. The tab on the bottom of the HEI distributor shaft fits into the slot on top of oil pump drive shaft.
- 9) Carefully unplug the black 3-wire harness connector from the distributor cap and remove the cap from the HEI distributor by twisting and pushing down the spring loaded hold down clamps with a flat bladed screw driver. Make sure the gasket is in place on the HEI distributor housing below the stop collar. Hold the HEI distributor with the vacuum advance canister pointing at the passenger side of the engine compartment. Turn the rotor so that the tab on the bottom of the distributor shaft will line up with and fit into the "slot" on top of the oil pump drive shaft. Now turn the rotor counterclockwise the same small amount as was noted in Step #7. As the HEI distributor slides into the engine, the rotor will turn back clockwise that same small amount as the distributor driven gear seats into place against the camshaft drive gear. The HEI distributor should sit all the way down with the stop collar and gasket resting against the engine block. If it doesn't, pull it out and try again until it does. Now secure the distributor with the hold down clamp.

You may have to slightly bend your oil dipstick tube out of the way of the HEI distributor because the HEI distributor cap is much larger than the old distributor. If it does need to be bent, be very careful not to break the oil dipstick tube or damage or unseat the seal at the base of the dipstick tube.

- 10) Re-install the HEI distributor cap back on the distributor. Make sure all the hold down clamps are pointed outward. Make sure the cap is on straight and that the alignment notch on the inside edge of the cap is aligned properly with the slot in the distributor bowl housing. Note which spark plug wire tower the rotor is pointing closest to and note that as the #1 cylinder. Tighten down the distributor spring loaded hold down clamps securing the cap to the distributor.
- 11) Plug the black 3-wire harness connector back into the distributor cap.
- 12) If the old spark plugs are in good working condition, you can re-gap the spark plugs from 0.035" to 0.045" and reinstall them in the engine. However this would be a good time to install a fresh set of spark plugs and gap them at 0.045. This is possible due to the higher energy output of the new HEI distributor.
- 13) Using the proper firing order for the engine (1-5-3-6-2-4 clockwise on cap), begin installing the new HEI spark plug wires at the #1 terminal on the distributor cap. Make sure you use a high quality spark plug wire set with at least 8mm spark plug wires for use with the new HEI Distributor. The stock 7mm spark plug wires will not handle the Higher Voltage output of the HEI distributor!
- 14) Unplug and remove the old factory ignition module completely. It is not need with the HEI distributor.
- 15) One of the two harness connectors that was unplugged from the old factory ignition module has a large 10 gauge wire (probably RED or YELLOW), which is a 12V switched power source. This is the wire that needs to be connected to the BAT terminal in the cap of the new HEI Distributor. You will need a 1/4" x 0.032" quick disconnect type female terminal on the 12V switch power source lead to make the connection with the tab in the HEI distributor cap. The other terminal tab in the HEI distributor cap is to be connected to the tachometer, if the vehicle is so equipped. You will need the same 1/4" x 0.032" quick disconnect type female terminal on the tachometer lead as well.

- 16) The factory harness and plug that was disconnected from the old factory old distributor can be removed from your engine compartment as well.
- 17) Plug the vacuum line that was removed from the old factory distributor for the time being.
- 18) Reconnect the negative battery terminal.
- 19) The engine is now ready to start. When the engine is started for the first time, it will probably run fairly rough. The engine needs get up to normal operating temperature before you can begin to time it properly.
- 20) Once the engine is completely warmed up, bring the engine speed up to 1000 RPM. Loosen the distributor hold down clamp just a little. Using a timing light, rotate the distributor in whichever direction is necessary to bring the timing to approximately 8 degrees before TDC. Tighten the hold down clamp.

Please note that every vehicle's engine is slightly different due to age, wear and modifications as well as regional differences in fuel quality and the operational elevation of the vehicle. You may need to experiment with the timing to achieve the maximum performance. Most engines with the HEI distributor typically run the best when the base or initial timing is set at 6 to 10 degrees before TDC. The HEI distributor has a mechanical advance curve that begins at 1200 RPM and is all in by 3600 RPM with 20 degrees of advance,

- 21) Bring your idle back down to normal. Depending on the year and transmission type the warm engine idle speed could be anywhere from 600 RPM up to 950 RPM. Verify that the vacuum line to the distributor is connected to a ported vacuum sourced, especially if the engine is equipped with an aftermarket carburetor. Do NOT connect the vacuum line to a direct source of intake vacuum!
- 22) The new HEI distributor is also equipped with an adjustable vacuum advance canister. You can adjust how much additional vacuum timing advance can be delivered under light engine load during high intake vacuum conditions such as during highway cruise, to improve the economy of the engine. The unit is adjusted by removing the vacuum line to the canister nipple and inserting a 2.5mm Allen wrench into the end of the canister nipple and turning the internal hex set screw. Turning it counter clock wise reduces the amount of advance, while turning it clock wise increases the amount of advance. The vacuum advance canister is set at the factory approximately in the middle of the adjustment range. With five full turns of adjustment in either direction. Turning the adjustment all the way counter clockwise until it stops reduces the amount of vacuum advance to about 2 degree at a vacuum reading of 10 inches of Hg. Turning the adjustment all the way clockwise until it stops increases the amount of vacuum advance to about 18 degrees at a vacuum reading of 10 inches of Hg.

Again, you may need to experiment with the timing to achieve the maximum performance. The best way to find the optimum vacuum advance for your engine is to turn the adjustment screw all the way counter clockwise until it stops, reattach the vacuum line and then drive the vehicle. Then remove the vacuum line and turn the adjustment screw one full turn clockwise, reattach the vacuum line and drive the vehicle listening for any pre-ignition pinging. If none is heard, then try one addition full turn of the adjustment screw and retest drive the vehicle again listening for any pre-ignition pinging. Once you detect pre-ignition pinging, then remove the vacuum line and turn the adjustment back one full turn counter clockwise. The vacuum advance should now be set for your specific engine. If you happen to buy a tank full of low quality gas, you may experience pre-ignition pinging during light engine loading. If this happens you will have to temporarily turn back the amount of vacuum advance to prevent any damage that could result from pre-ignition.

With installation of the HEI distributor you should notice improved overall engine performance, a smoother idle and quicker throttle response with reduced fuel consumption all because of the improved ignition system.

PLEASE NOTE: These instructions are for reference purposes only. These instructions are intended to simplify the installation of the HEI distributor. It is assumed that the installer of this HEI distributor has basic mechanical knowledge. If there are any questions regarding the installation of this HEI distributor, the installer should consult the vehicles actual automotive reference or shop manual for proper procedures, prior to the installation. Some steps in the above mentioned installation procedure may vary depending on the Make/Model/Year/Options of your particular vehicle and engine.

Emissions laws and regulations vary from one state to another. Please check with your local state emissions regulations prior to installing the HEI Distributor. The installation of the HEI distributor maybe only legal for use in off-road vehicles in some states.