

How To Adjust Timing

About Valve Timing

When the car leaves the factory the valves are set so as to open and close at exactly the proper time. After the car has been in service for some time, the ends of the valve stems may wear, which will throw the engine out of time. The following instructions explain how to time the valves:

To Time the Valves

The car when it leaves the factory, is accurately timed, and the valves should not require much timing for at least a season. We would not advise anyone who is not perfectly familiar with timing four-cylinder engines to tamper with the valve timing. Should it, however, be necessary to retime the valves for any reason, the following explains how it is done:

In the first place if it is necessary to remove the crank shaft, or either of the two cam shafts, care should be taken that in replacing them the time gear on the crank shaft and the half time gears, of which there is one on each cam shaft, are properly meshed. On each cam shaft gear will be found a marked tooth which should register between correspondingly marked teeth on crank shaft gear. After being sure that these gears are in the right position the timing can be tested out as follows:

The fly wheel is marked with two centers, on opposite sides, one marked 1-4 and the other 2-3. There are also marks on the circumference of the fly wheel, indicating where the exhaust and inlet valves on each cylinder open and close, these marks being laid out in accordance with the following formula, viz: Inlet opens 15 degrees late and closes 40 late. Exhaust opens 4 early and closes 10 late.

When the 1-4 mark on the fly wheel appears on top it indicates that the pistons in 1 and 4 cylinders are up and that these crank throws are on top center. In this position, the two rods of either the No. 1 or the No. 4 cylinder should be free and loose under their valve stems, and whichever set of push rods is loose, this is the cylinder that is firing. If it should happen to be No. 1 cylinder, by turning the fly wheel in the direction of rotation, the push rod under the exhaust valve on this cylinder should commence to lift when the mark on the fly wheel, "1-4 Exhaust Opens," is on the top center. Continue to rotate the fly wheel, and the marks "1-4 Exhaust Closes" should come to the top center, as the different operations commence or finish, as will be shown by examining the push rods. This times cylinder No. 1, and the fly wheel having turned just one complete revolution and the same center marks 1-4 being on top, the same cycle of operations can be followed through cylinder No. 4.

This being accomplished, make one-half revolution of the fly wheel, which will bring the second center 2-3 up on top, and the timing of cylinders Nos. 2 and 3 can be followed through in the same manner as was done with 1 and 4.

If the clearance is too great or too little, the valve may be timed accurately to the marks on the fly wheel by adjusting the nut and screw in the push rod.

Please note that in the following and foregoing instructions,