

5.5 When attaching a tachometer, be sure to hook up the leads correctly, especially on electronic ignition systems

6 Ignition system inspection and testing — general information

Note: Initial checking procedures for many ignition system components can be found in Chapter 1.

Secondary ignition system problems (distributor cap, rotor, plug wires and spark plugs) and diagnosis are best handled with an automotive electronic oscilloscope. An experienced operator and an electronic oscilloscope can pinpoint such problems as worn spark plugs, high resistance spark plug wires, a damaged or cracked distributor cap and/or rotor, leakage between spark plug wires and other similar problems.

Primary system problems (breaker points, distributor internal components, electronic ignition module, etc.) can also be pinpointed with an oscilloscope. However, the main components sometimes require additional special test equipment and procedures. Testing of electronic ignition modules, for example, must be done by a Ford dealer service department.

A preliminary diagnosis of an ignition system can reveal such things as faulty or disconnected wires and current leakage from the coil and distributor (see Chapter 1).

With electronic ignition, the complexity of the components and testing procedures prevents in-field diagnosis of many problems by the home mechanic. If a preliminary overall visual check reveals no obvious problems such as disconnected, broken or damaged components, the vehicle will have to be taken to a professional mechanic to have the components diagnosed. Replacement of components diagnosed as defective may be made either by the service facility or the home mechanic, depending upon the ability of the home mechanic. Replacement parts are available from aftermarket manufacturers as well as Ford dealers.

7 Spark plugs — general information

Note: Additional spark plug information can be found in Chapter 1.

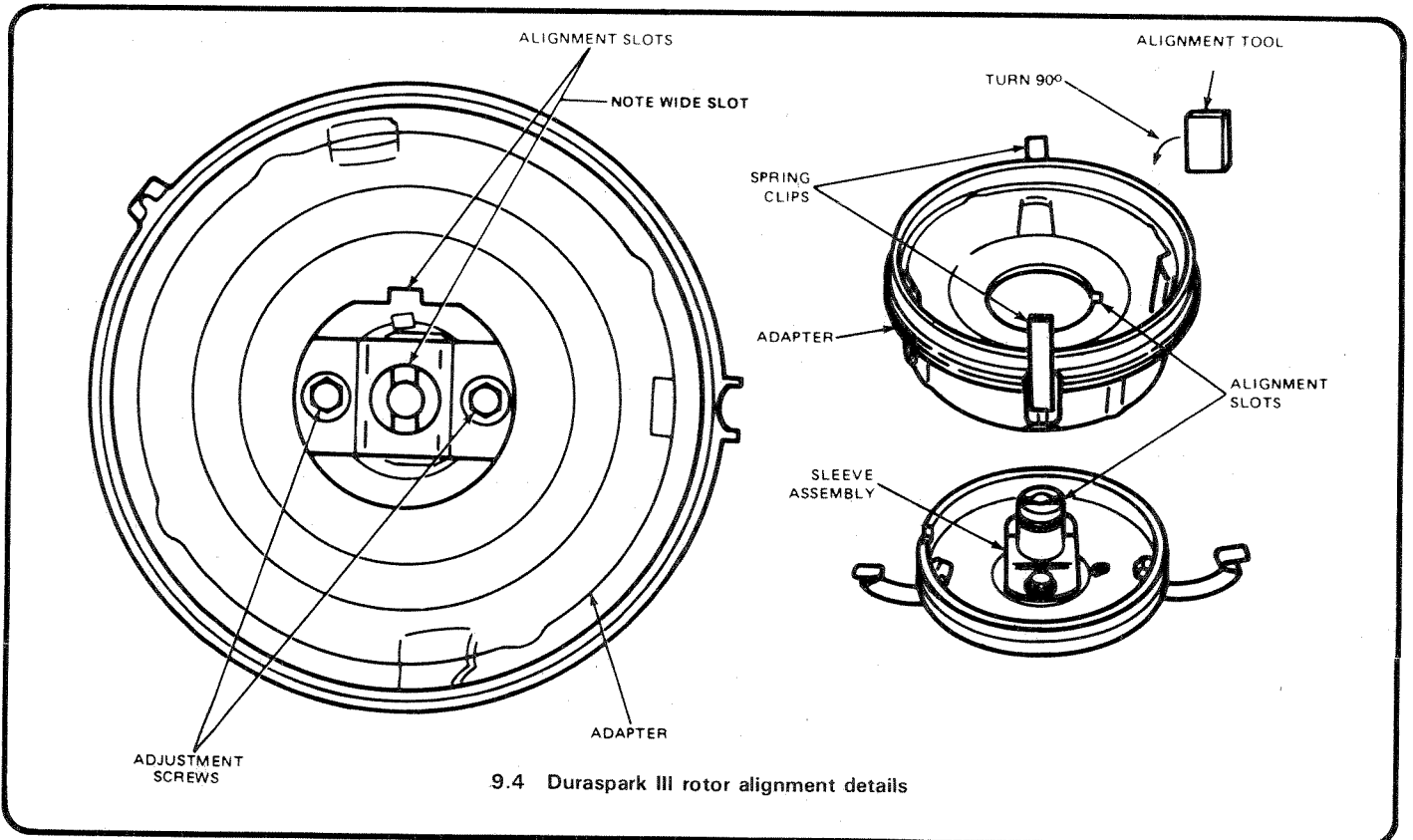
Properly functioning spark plugs are necessary if the engine is to perform well. At the intervals specified in Chapter 1, or your owner's manual, the spark plugs should be replaced with new ones.

It is important to replace spark plugs with new ones of the same heat range and type. A series of numbers and letters are included on the spark plug to help identify each variation.

The spark plug gap is very important. If it is too large or too small, the size of the spark and its efficiency will be seriously impaired. To set it, measure the gap with a wire-type feeler gauge, and then bend the outer plug electrode until the correct gap is achieved. The center electrode should never be bent as this may crack the insulator and cause plug failure.

The condition and appearance of the spark plugs will tell much about the condition and state of tune of the engine. If the insulator nose of the spark plug is clean and white with no deposits, it may be indicative of a weak mixture, or too hot a plug (a hot plug transfers heat away from the electrode slowly — a cold plug transfers it away quickly).

If the tip and insulator nose are covered with hard black deposits, it is indicative that the mixture is too rich. Should the plug be black and oily, it is likely the engine is fairly worn, as well as the mixture being too rich.



9.4 Duraspark III rotor alignment details