

## Part 2 — Ignition System — Solid State

SUBJECT	PAGE	SUBJECT	PAGE
<b>IDENTIFICATION</b> .....	2-01	<b>REMOVAL AND INSTALLATION (Cont'd)</b>	
<b>DESCRIPTION</b> .....	2-01	Ignition Wires .....	2-17
<b>ADJUSTMENTS</b>		Spark Plugs .....	2-17
Initial Ignition Timing .....	2-04	<b>CLEANING AND INSPECTION</b>	
<b>DIAGNOSIS AND TESTING</b> .....	2-04	Distributor Assembly .....	2-17
<b>REMOVAL AND INSTALLATION</b>		Distributor Cap and Rotor .....	2-17
Distributor .....	2-15	Spark Plugs .....	2-18
Stator Assembly .....	2-16	Ignition Wires .....	2-18
Diaphragm Assembly .....	2-16	Ignition Coil .....	2-18
Distributor Cap, Adapter and Rotor .....	2-16		

### IDENTIFICATION

The distributor assemblies can be identified through the information stamped on a metal tag attached to the distributor by a diaphragm assembly attaching screw.

E2T2 ← PREFIX  
12127 ← BASIC PART NUMBER  
ABA ← SUFFIX

### DESCRIPTION

The solid state ignition is the Duraspark II breakerless type. It is equipped with a vacuum and centrifugal advance to control ignition timing.

The distributor provides a signal to the ignition module which controls the timing of the spark at the spark plugs. The signal is generated as the armature, attached to the distributor shaft, rotates past the stator assembly. The rotating armature causes fluctuations in a magnetic field produced by the stator assembly magnet. These fluctuations induce a voltage in the stator assembly pick-up coil. This signal is connected to the ignition module by the wiring harness.

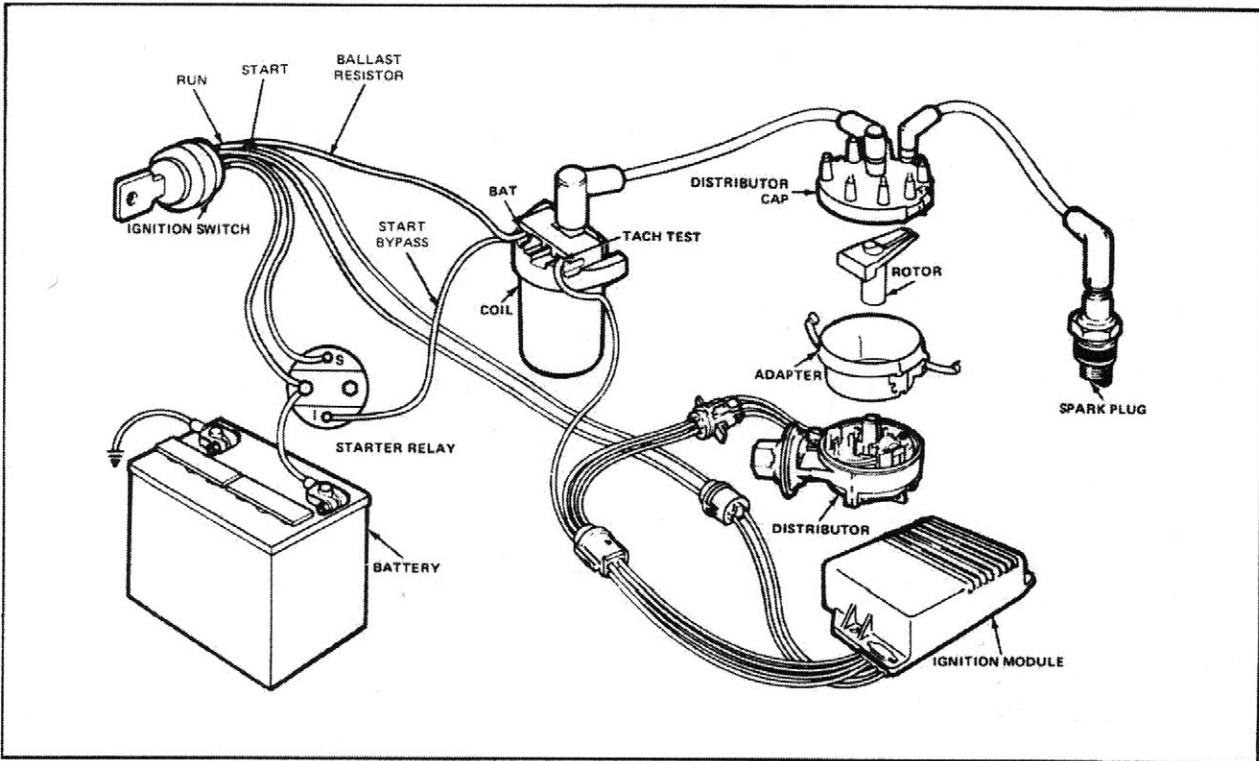
The occurrence of the signal to the ignition module, in relation to initial spark timing, is controlled by centrifugal and vacuum mechanisms. The centrifugal advance mechanism controls spark timing in response to the engine RPM. The vacuum mechanism controls spark timing in response to engine load.

The centrifugal advance mechanism varies the relationship of the armature to the stator assembly. The sleeve and plate assembly, on which the armature is mounted, rotates in relation to the distributor shaft. This rotation is caused by centrifugal weights moving in response to engine

RPM. The movement of the centrifugal weights change the initial relationship of the armature to the stator assembly by rotating the sleeve and plate assembly ahead of its static position on the distributor shaft. This results in spark advance. The rate of movement of the centrifugal weights is controlled by calibrated springs.

The vacuum spark control mechanism provides spark advance. The diaphragm assembly also varies the armature to stator relationship to provide spark advance. In this case the stator assembly position is changed by means of vacuum applied to the diaphragm assembly. Vacuum applied to the diaphragm assembly causes the diaphragm and attached diaphragm rod to move, compressing the advance spring, which controls the rate of spark advance. This movement of the diaphragm rod, which is attached to the stator assembly, causes the stator assembly to move with respect to the armature. This changes the initial armature to stator assembly relationship established during initial timing set, causing spark advance. The stator assembly is mounted on the lower plate assembly which, along with the diaphragm assembly, is attached to the distributor base.

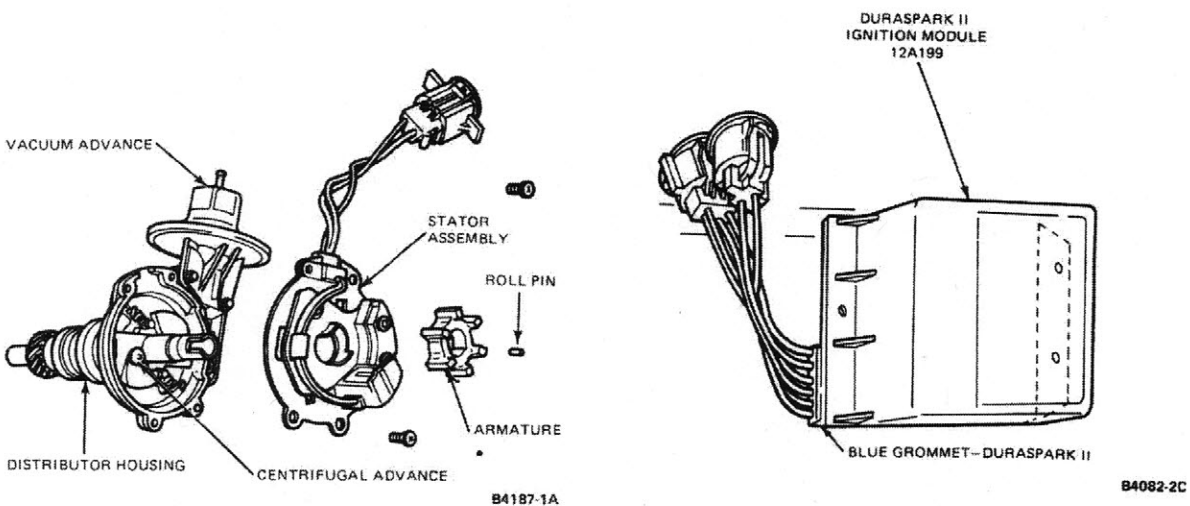
DESCRIPTION (Continued)



The Duraspark II ignition module is shown. The standard base part number for this module is 12A199.

response to a control signal. In the Duraspark II ignition system this control signal comes from the distributor stator assembly.

The ignition module performs the function of turning off current flow through the ignition coil in



## DESCRIPTION (Continued)

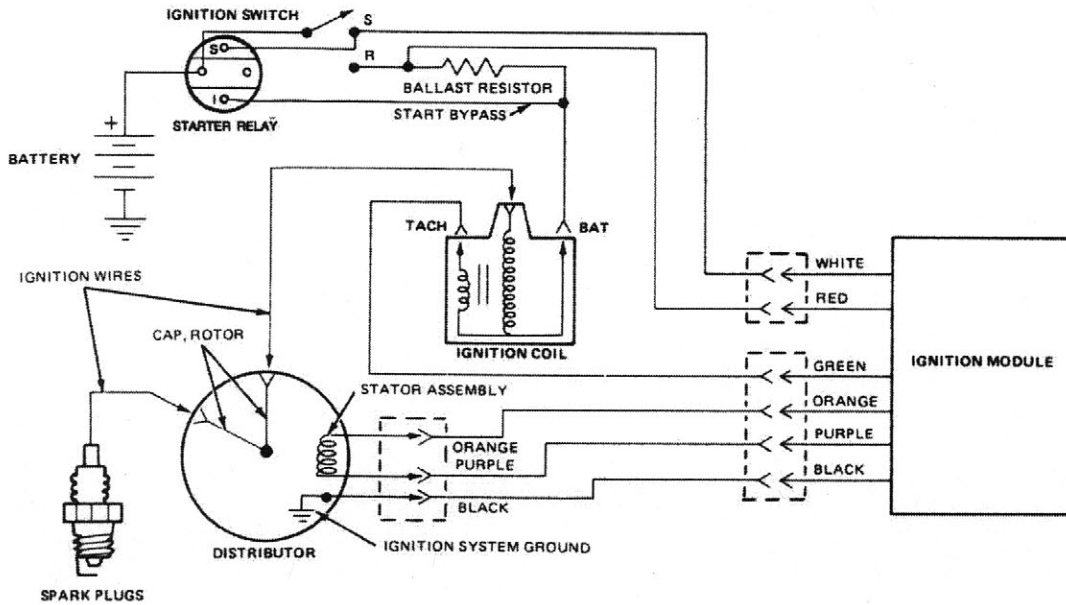
The Duraspark II ignition system consists of a primary and a secondary circuit.

The primary circuit consists of the:

1. Battery
2. Ignition Switch
3. Ballast Resistor — Start Bypass (Wires)
4. Ignition Coil Primary Winding
5. Ignition Module
6. Distributor Stator Assembly

The secondary circuit consists of the:

1. Battery
2. Ignition Coil Secondary Winding
3. Distributor Rotor
4. Distributor Cap
5. Ignition Wires
6. Ignition Switch
7. Ballast Resistor — Start Bypass (Wires)
8. Spark Plugs

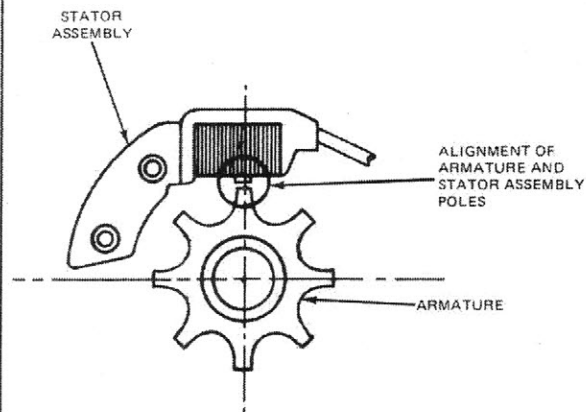


## DESCRIPTION (Continued)

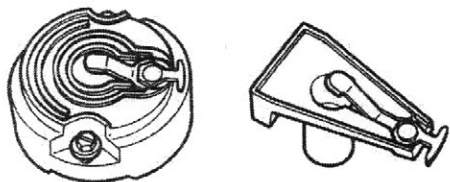
With the ignition switch in the Run position, primary circuit current flows from the battery, through the ignition switch, the ballast resistor, the ignition coil primary (BATTERY), the ignition module (GREEN wire), and back to the battery through the ignition system ground in the distributor (BLACK wire). This current flow causes a magnetic field to be built up in the ignition coil. When the poles on the armature and stator assembly align, the ignition module turns the primary current off, collapsing the magnetic field in the ignition coil. The collapsing field induces a high voltage in the ignition coil secondary winding. The ignition coil wire conducts the high voltage to the distributor where the cap and rotor distribute it to the appropriate spark plug.

A timing circuit in the ignition module turns the primary current back on after a short period of time. High voltage is produced each time the magnetic field is built up and collapsed.

The RED ignition module wire provides operating voltage for the ignition module's electronic components in Run mode. The WHITE wire provides voltage for the ignition module during Start mode. Bypass provides increased voltage for the ignition coil during Start mode.



B3509-1B



B4283-1B

## ADJUSTMENTS

Ignition system adjustments are limited to initial timing and spark plug gap on Duraspark II systems.

### INITIAL IGNITION TIMING

The timing marks and their locations are illustrated on page 2-18.

For checking and adjusting the ignition timing with a scope refer to the scope manufacturer's instructions. To check and adjust the timing with a timing light, proceed as follows:

1. Clean and mark the specified timing mark with chalk or white paint.
2. Disconnect the vacuum line and plug the disconnected vacuum line.
3. Connect a timing light to the No. 1 cylinder spark plug wire. Connect a tachometer to the engine.
4. Start the engine and reduce the idle speed to 600 RPM to be sure that the centrifugal advance is not operating.
5. Direct the timing on the timing marks. The light should flash just as the notch on the pulley lines up between the 4 and 8. Check specifications for correct initial ignition timing.
6. If the timing is not to specification, loosen the distributor retaining bolt and rotate the distributor body until the marks are in line.

Ignition timing is advanced by counter-clockwise rotation of the distributor body, while clockwise rotation retards timing.

7. Tighten distributor retaining bolt and connect vacuum hose.
8. To determine if the advance mechanism is functioning, accelerate the engine while watching the timing mark with the timing light. The notch on the crankshaft pulley should advance as engine RPM increases.
9. Disconnect the timing light.

## DIAGNOSIS AND TESTING

Procedures for ignition system diagnosis and testing are shown in the tests on the following pages.

**DIAGNOSIS AND TESTING (Continued)**

**Checkout**

- Visually inspect the engine compartment to ensure all vacuum hoses and spark plug wires are properly routed and securely connected.
- Examine all wiring harnesses and connectors for insulation damage, burned, overheated, loose, or broken conditions.
- Be certain the battery is fully charged.
- All accessories should be Off during diagnosis.

**Equipment**

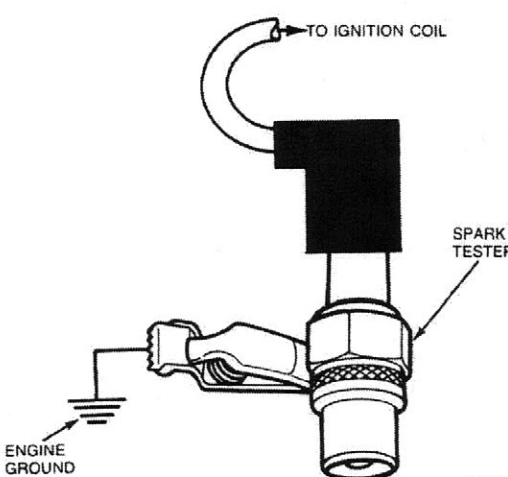
Obtain the following test equipment or an equivalent:

- Spark Tester, Special Service Tool D81P-6666-A.

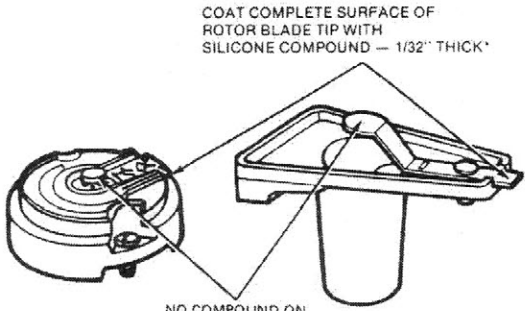
- Digital Volt-Ohmmeter Rotunda 014-00407.
- Small straight pins (2).

**Notes**

- All wire colors referred to in this part relate to the colors of the ignition module wires. When working with a wiring harness, the wires must be traced back to the ignition module for proper color identification.
- When instructed to inspect a wiring harness, both a visual inspection and a continuity test should be performed.
- When making measurements on a wiring harness or connector, it is good practice to wiggle the wires while measuring.

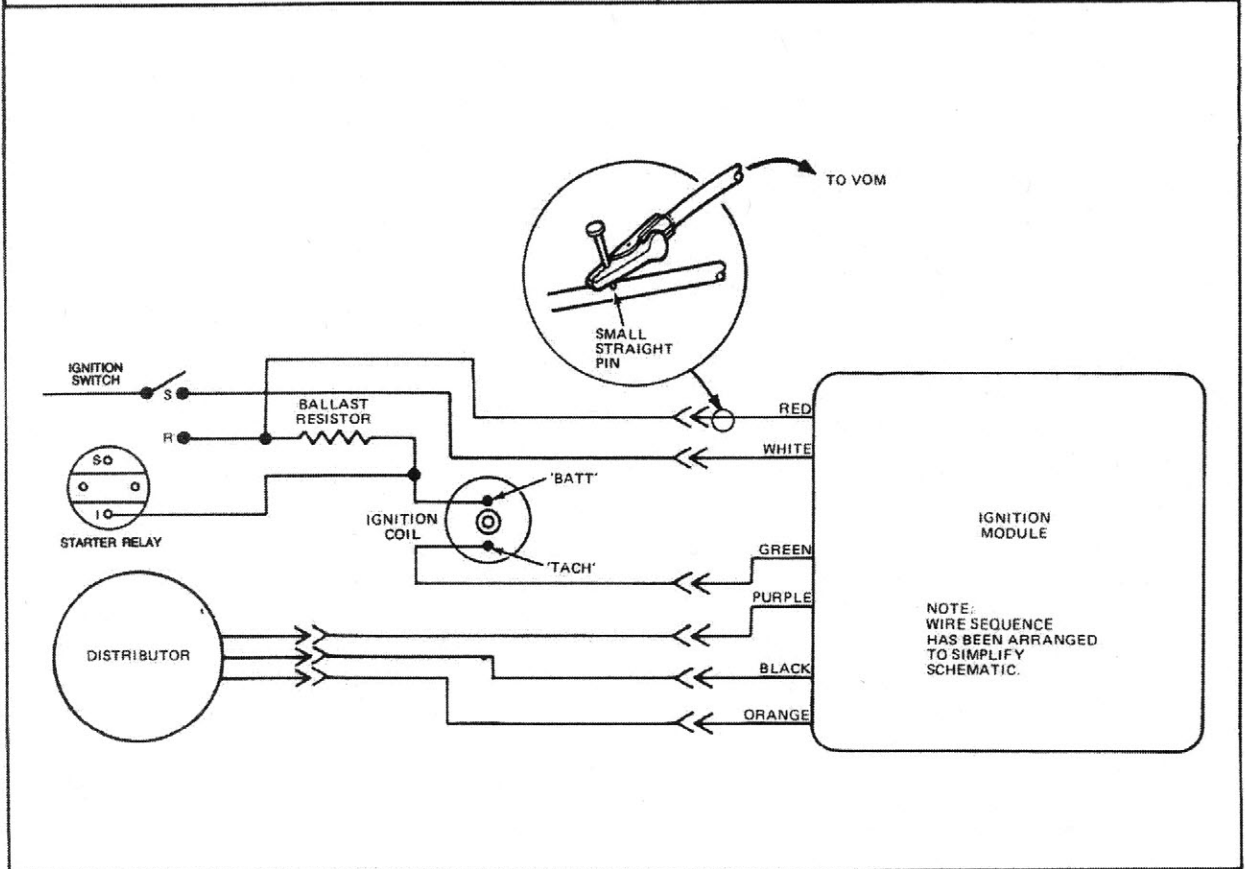
TEST STEP		RESULT	ACTION TO TAKE
1	START CIRCUIT		
<ul style="list-style-type: none"> <li>• Connect spark tester between ignition coil wire and engine ground.</li> <li>• Crank engine using ignition switch.</li> </ul>  <p style="text-align: right;">A6025-C</p>		Sparks	GO to 2.
		No Sparks	<p>MEASURE resistance of ignition coil wire. Replace if greater than 5,000 ohms per inch.</p> <p>INSPECT ignition coil for damage, carbon tracking.</p> <p>CRANK engine to verify distributor rotation.</p> <p>GO to 5.</p>

**DIAGNOSIS AND TESTING (Continued)**

TEST STEP		RESULT	ACTION TO TAKE
2	<p><b>RUN CIRCUIT</b></p> <ul style="list-style-type: none"> <li>• Turn ignition switch from Off to Run to Off position several times.</li> <li>• Spark should occur each time switch goes from Run to Off position.</li> <li>• Remove spark tester, reconnect coil wire to distributor cap.</li> </ul>	Sparks	<p>INSPECT distributor cap, adapter, rotor for cracks, carbon tracking, lack of silicone compound.</p> <p>CHECK for roll pin securing armature to sleeve in distributor.</p> <p>CHECK that ORANGE and PURPLE wires are not crossed between distributor and ignition module.</p>
<div style="text-align: center;"> <p>COAT COMPLETE SURFACE OF ROTOR BLADE TIP WITH SILICONE COMPOUND — 1/32" THICK*</p>  <p>NO COMPOUND ON THIS SURFACE</p> <p>ESCORT/LYNX, EXP/LN7</p> <p>6- AND 8-CYLINDER APPLICABLE TO 4 CYLINDER</p> <p>A6027-B</p> </div>		No Sparks	GO to 3.
<div style="border: 1px solid black; padding: 2px; width: fit-content;"> <p>*DO NOT USE SILICONE COMPOUND ON MULTIPOINT ROTOR.</p> </div>			

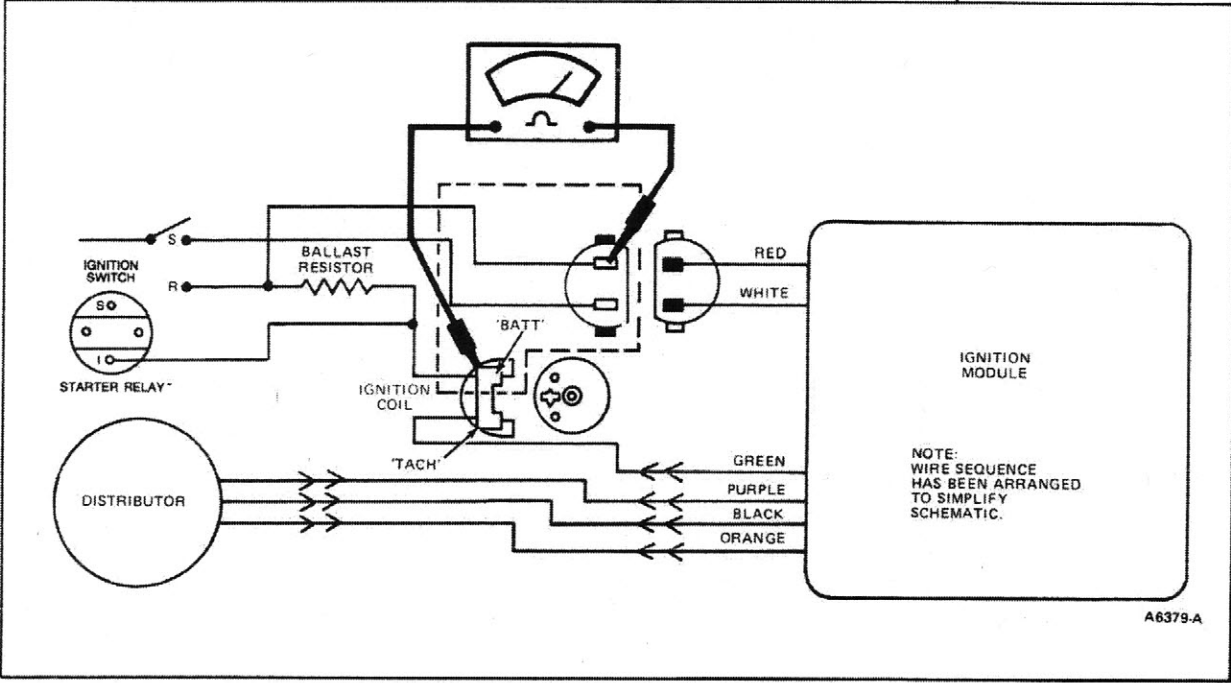
**DIAGNOSIS AND TESTING (Continued)**

TEST STEP		RESULT	ACTION TO TAKE
3	MODULE VOLTAGE		
<ul style="list-style-type: none"> <li>● Turn ignition switch Off.</li> </ul> <ol style="list-style-type: none"> <li>1. Carefully insert small straight pin in RED module wire.</li> </ol> <p><b>CAUTION: Do not allow straight pin to contact electrical ground.</b></p> <ol style="list-style-type: none"> <li>2. Attach negative ( - ) VOM lead to distributor base.</li> <li>3. Measure battery voltage.</li> <li>4. Measure voltage at straight pin with ignition switch in Run position.</li> <li>5. Turn ignition switch to Off position.</li> <li>6. Remove straight pin.</li> </ol>		90 percent of battery voltage or greater	GO to 4.
		Less than 90 percent of battery voltage	Refer to wiring diagram. Inspect wiring harness between module and ignition switch.  Worn or damaged ignition switch.



**DIAGNOSIS AND TESTING (Continued)**

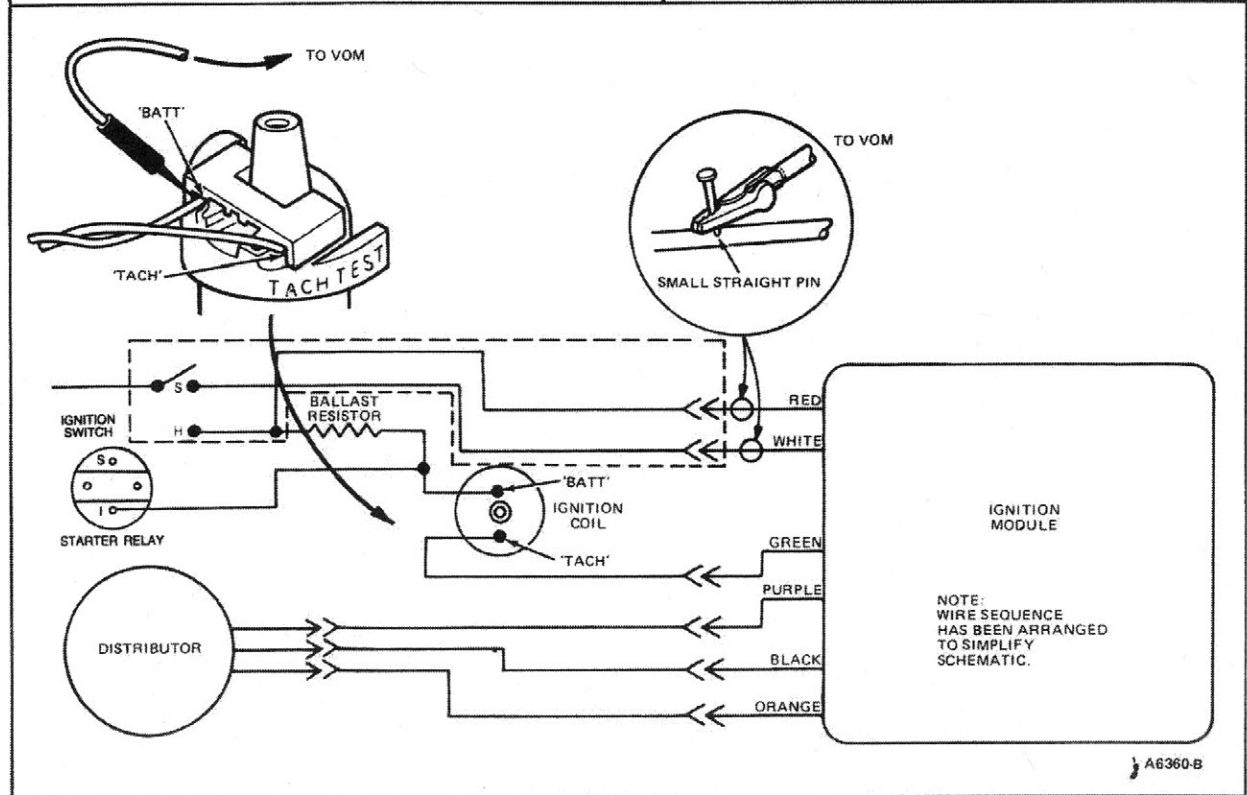
TEST STEP	RESULT	ACTION TO TAKE
<p><b>4 BALLAST RESISTOR</b></p> <ol style="list-style-type: none"> <li>1. Separate and inspect ignition module two wire connector with RED and WHITE wires.</li> <li>2. Disconnect and inspect ignition coil connector.</li> <li>3. Measure ballast resistor between BATT terminal of ignition coil connector and wiring harness connector mating with RED module wire.</li> <li>4. Reconnect all connectors.</li> </ol>	0.8 to 1.6 ohms	Problem is either intermittent or not in ignition system. GO to 5.
	Less than 0.8 or greater than 1.6 ohms	Replace ballast resistor.





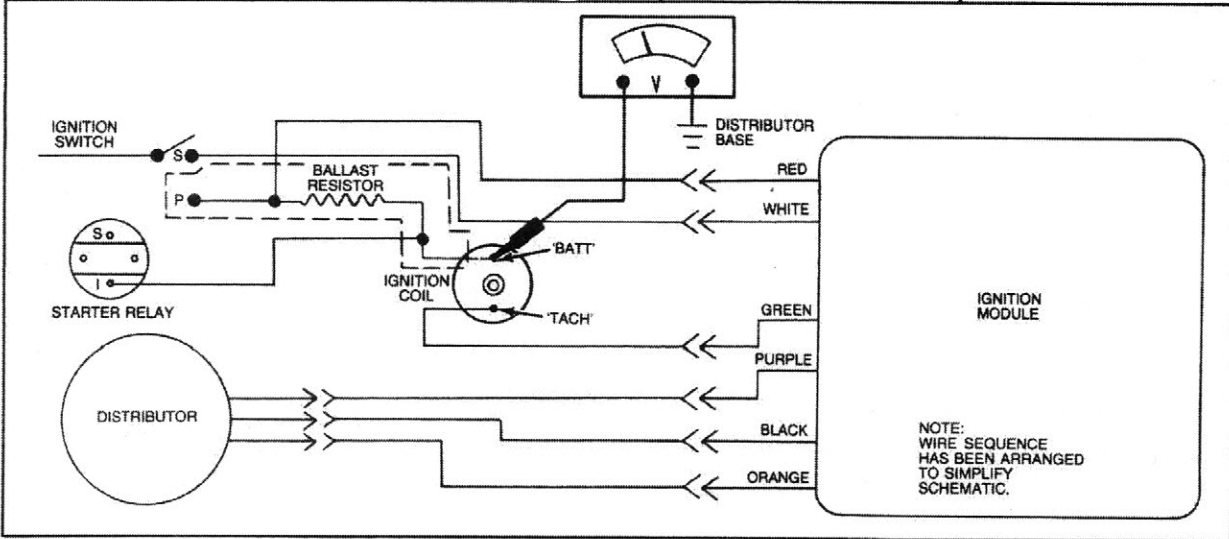
**DIAGNOSIS AND TESTING (Continued)**

TEST STEP	RESULT	ACTION TO TAKE												
<p><b>5</b> SUPPLY VOLTAGE CIRCUITS</p> <ol style="list-style-type: none"> <li>1. Remove SPARK TESTER, reconnect coil wire to distributor cap.</li> <li>2. Disconnect cable from starter relay to starter motor.</li> <li>3. Carefully insert small straight pins in RED and WHITE module wires.</li> </ol> <p><b>CAUTION: Do not allow straight pins to contact electrical ground.</b></p> <ol style="list-style-type: none"> <li>4. Measure battery voltage.</li> <li>5. Following table below, measure voltage at points listed with ignition switch in position shown.</li> </ol> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>• Attach negative (-) VOM lead to distributor base.</li> <li>• Wiggle wires in wiring harness when measuring.</li> </ul> <table border="1" data-bbox="284 795 834 1013"> <thead> <tr> <th>WIRE/TERMINAL</th> <th>CIRCUIT</th> <th>IGN. SWITCH POSITION</th> </tr> </thead> <tbody> <tr> <td>RED</td> <td>RUN</td> <td>RUN</td> </tr> <tr> <td>WHITE</td> <td>START</td> <td>START</td> </tr> <tr> <td>"BATT" TERMINAL IGNITION COIL</td> <td>BALLAST RESISTOR BYPASS</td> <td>START</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>6. Turn ignition switch to Off position.</li> <li>7. Remove straight pins.</li> <li>8. Reconnect any cables/wires removed from starter relay.</li> </ol>	WIRE/TERMINAL	CIRCUIT	IGN. SWITCH POSITION	RED	RUN	RUN	WHITE	START	START	"BATT" TERMINAL IGNITION COIL	BALLAST RESISTOR BYPASS	START	<p>90 percent of battery voltage or greater</p> <p>Less than 90 percent of battery voltage</p>	<p>Test result OK. GO to 6.</p> <p>Refer to wiring diagram. Inspect wiring harness and connector(s) in faulty circuit(s). Worn or damaged ignition switch.</p>
WIRE/TERMINAL	CIRCUIT	IGN. SWITCH POSITION												
RED	RUN	RUN												
WHITE	START	START												
"BATT" TERMINAL IGNITION COIL	BALLAST RESISTOR BYPASS	START												

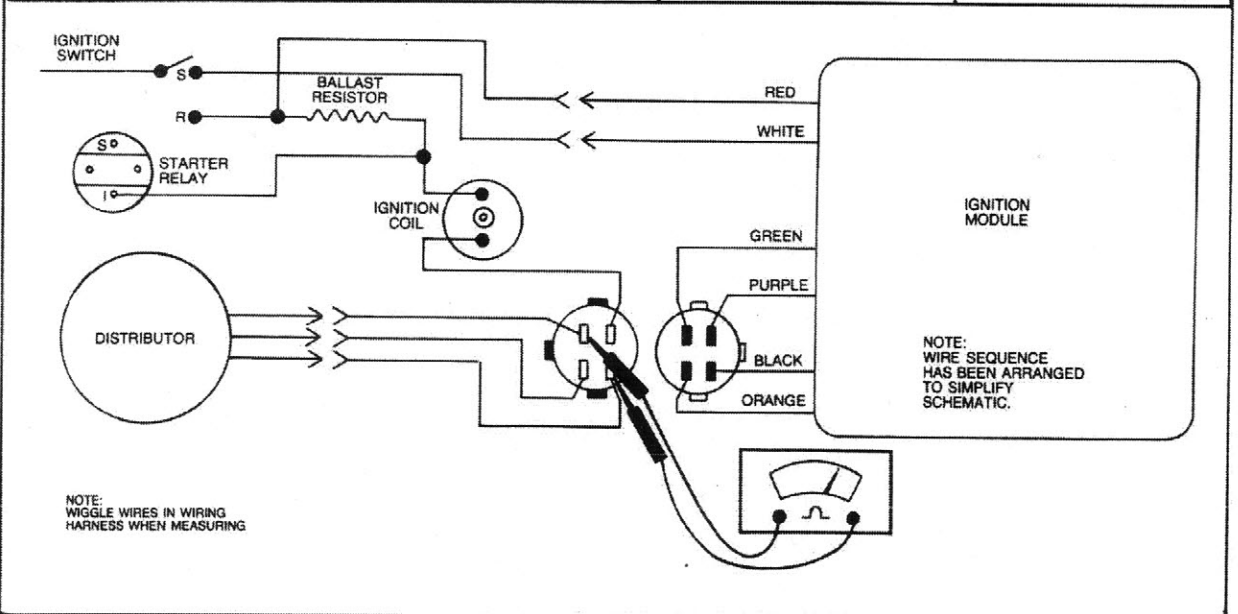


**DIAGNOSIS AND TESTING (Continued)**

TEST STEP	RESULT	ACTION TO TAKE
<b>6</b> IGNITION COIL SUPPLY VOLTAGE 1. Attach negative (-) lead of VOM to distributor base. 2. Turn ignition switch to Run position. 3. Measure voltage at BATT terminal of ignition coil. 4. Turn ignition switch to Off position.	6 to 8 volts	GO to 7.
	Less than 6 volts or greater than 8 volts	GO to 12.

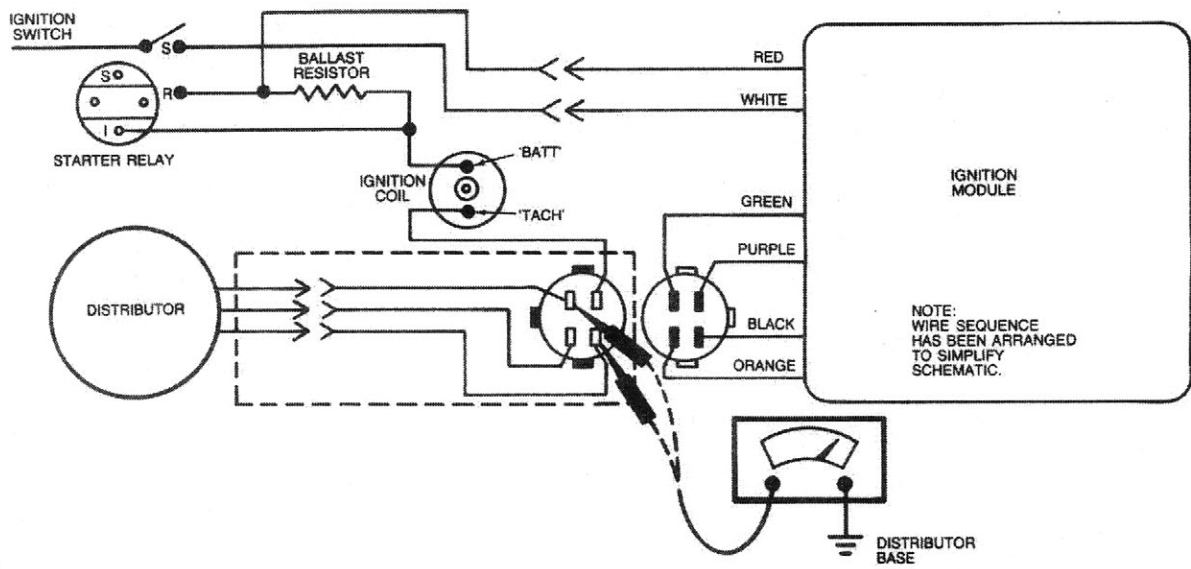


TEST STEP	RESULT	ACTION TO TAKE
<b>7</b> DISTRIBUTOR STATOR ASSEMBLY AND WIRING HARNESS 1. Separate ignition module four wire connector. Inspect for dirt, corrosion, and damage. 2. Measure stator assembly and wiring harness resistance between wiring harness terminals mating with ORANGE and PURPLE module wires.	400 to 1,300 ohms	Test result OK. GO to 8.
	Less than 400 or greater than 1,300 ohms	GO to 11.

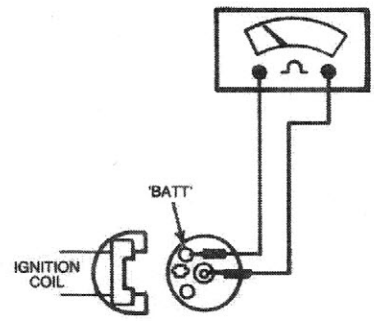


DIAGNOSIS AND TESTING (Continued)

TEST STEP	RESULT	ACTION TO TAKE
<p><b>8</b> DISTRIBUTOR STATOR ASSEMBLY WIRING HARNESS</p> <ol style="list-style-type: none"> <li>1. Attach one VOM lead to distributor base.</li> <li>2. Alternately measure resistance between wiring harness terminals mating with ORANGE and PURPLE module wires and ground.</li> <li>3. Reconnect four wire connector.</li> </ol>	Greater than 70,000 ohms	Test result OK. GO to 9.
	Less than 70,000 ohms	Inspect wiring harness between module connector and distributor, including distributor grommet.

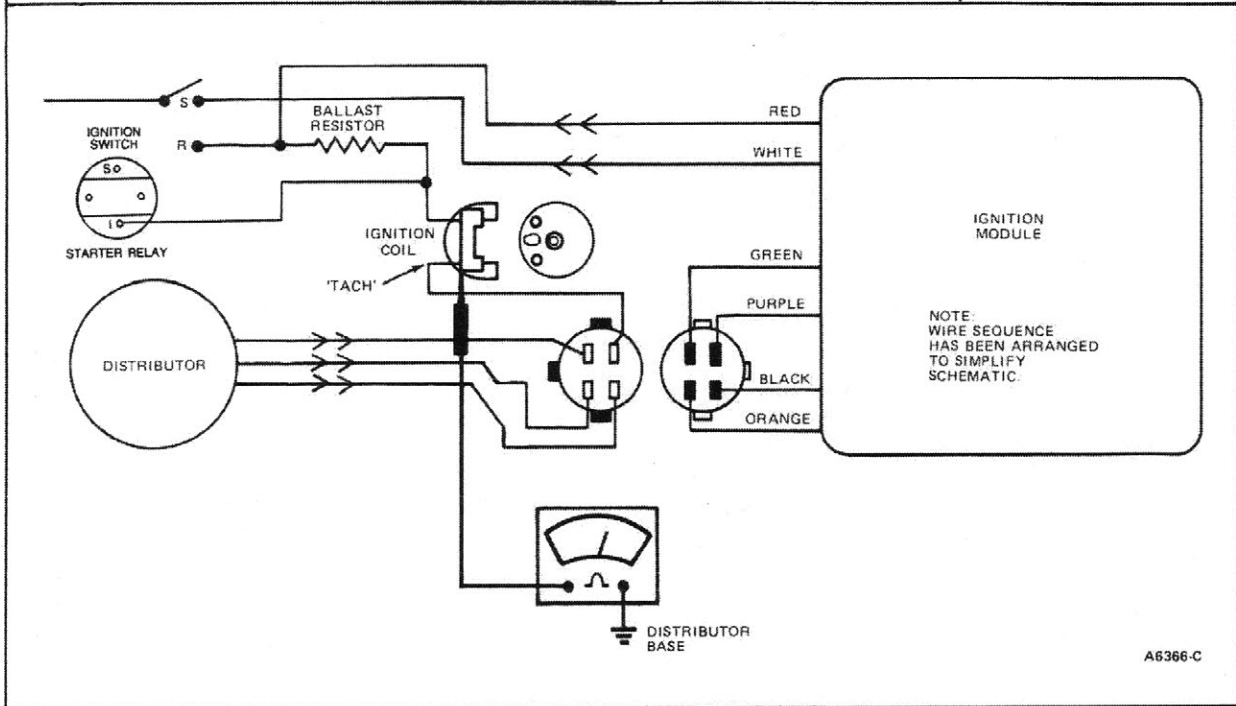


<p><b>9</b> IGNITION COIL SECONDARY RESISTANCE</p> <ol style="list-style-type: none"> <li>1. Disconnect and inspect ignition coil connector and coil wire.</li> <li>2. Measure secondary resistance from BATT terminal to high voltage terminal.</li> <li>3. Reconnect ignition coil wire.</li> </ol>	7,700 to 10,500 ohms	Test result OK. GO to 10.
	Less than 7,000 ohms or greater than 10,500 ohms	Replace ignition coil.

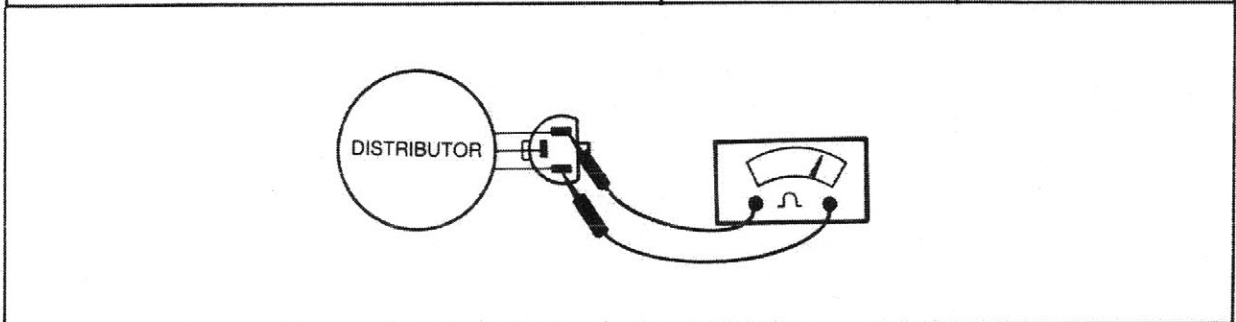


**DIAGNOSIS AND TESTING (Continued)**

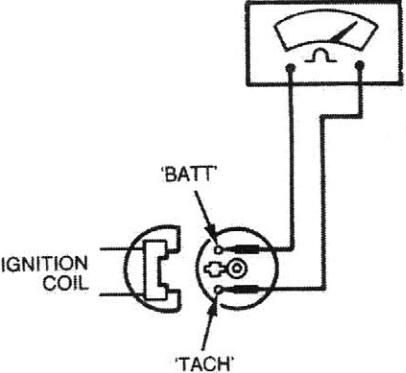
TEST STEP		RESULT	ACTION TO TAKE
10	MODULE TO COIL WIRE		
	<ol style="list-style-type: none"> <li>1. Separate and inspect ignition module four wire connector and ignition coil connector from coil.</li> <li>2. Connect one lead of VOM to distributor base.</li> <li>3. Measure resistance between TACH terminal of ignition coil connector and ground.</li> <li>4. Reconnect ignition module and coil connectors.</li> </ol>	Greater than 100 ohms	Replace ignition module.
		100 ohms or less	Inspect wiring harness between ignition module and coil.

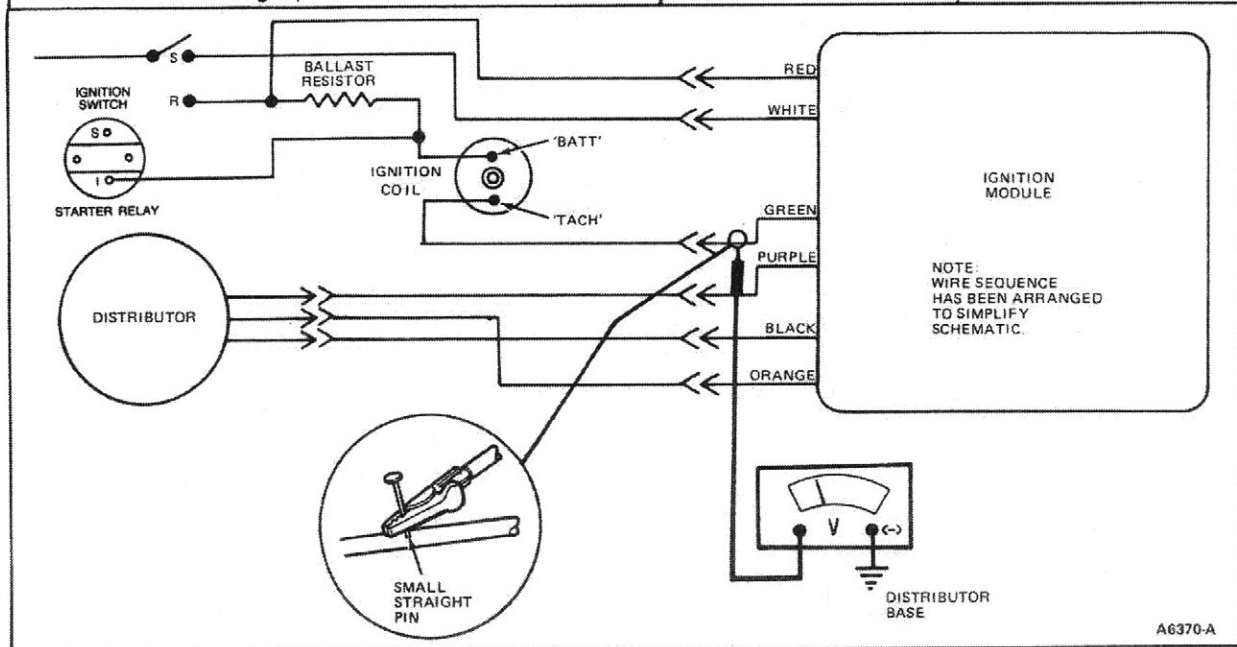


TEST STEP		RESULT	ACTION TO TAKE
11	DISTRIBUTOR STATOR ASSEMBLY		
	<ol style="list-style-type: none"> <li>1. Separate distributor connector from harness. Inspect for dirt, corrosion, and damage.</li> <li>2. Measure stator assembly resistance across ORANGE and PURPLE wires at distributor connector.</li> <li>3. Reconnect distributor and module connectors.</li> </ol>	400 to 1,000 ohms	Test result OK. Inspect wiring harness between distributor and ignition module.
		Less than 400 or greater than 1,000 ohms	Replace stator assembly.



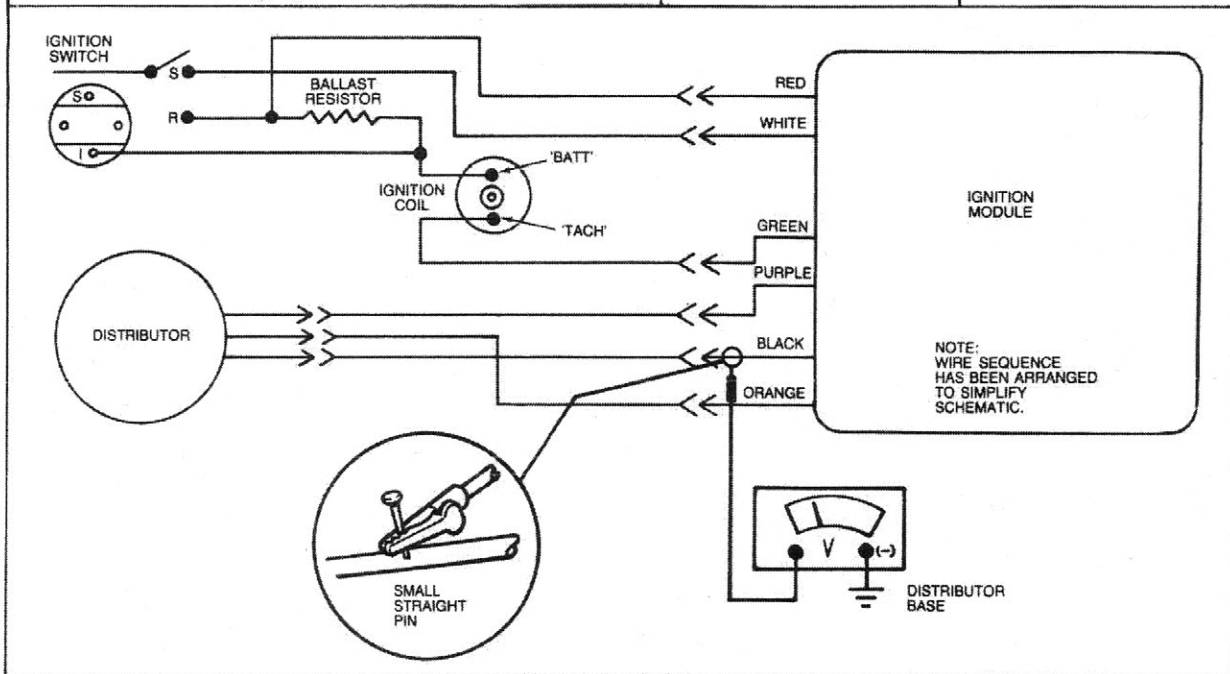
**DIAGNOSIS AND TESTING (Continued)**

TEST STEP	RESULT	ACTION TO TAKE
<p><b>12</b> IGNITION COIL PRIMARY RESISTANCE</p> <ol style="list-style-type: none"> <li>1. Disconnect ignition coil connector.</li> <li>2. Measure primary resistance from BATT to TACH terminal.</li> <li>3. Reconnect ignition coil connector.</li> </ol> 	<p>0.8 to 1.6 ohms</p>	<p>Test result OK. GO to 13.</p>
	<p>Less than 0.8 or greater than 1.6 ohms</p>	<p>Replace ignition coil.</p>
<p><b>13</b> PRIMARY CIRCUIT CONTINUITY</p> <ol style="list-style-type: none"> <li>1. Carefully insert small straight pin in module GREEN wire.</li> </ol> <p><b>CAUTION: Do not allow straight pin to contact electrical ground.</b></p> <ol style="list-style-type: none"> <li>2. Attach negative (-) VOM lead to distributor base.</li> <li>3. Turn ignition switch to Run position.</li> <li>4. Measure voltage at GREEN module wire.</li> <li>5. Turn ignition switch to Off position.</li> <li>6. Remove straight pin.</li> </ol>	<p>Greater than 1.5 volts</p>	<p>GO to 14.</p>
	<p>1.5 volts or less</p>	<p>Inspect wiring harness and connectors between ignition module and coil.</p>

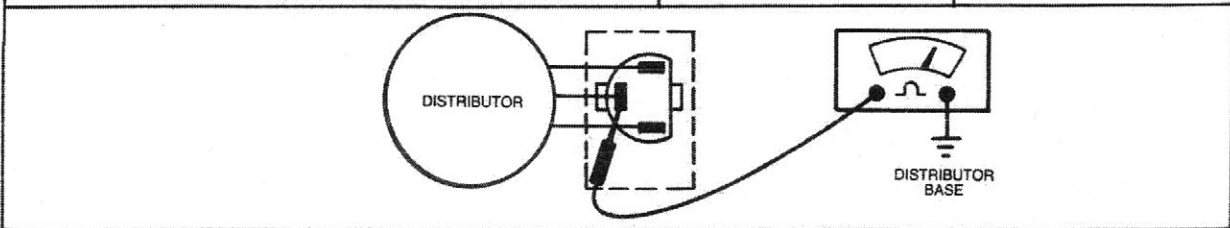


**DIAGNOSIS AND TESTING (Continued)**

TEST STEP		RESULT	ACTION TO TAKE
14	GROUND CIRCUIT CONTINUITY		
1. Carefully insert small straight pin in module BLACK wire. <b>CAUTION: Do not allow straight pin to contact electrical ground.</b> 2. Attach negative (-) VOM lead to distributor base. 3. Turn ignition switch to Run position. 4. Measure voltage at BLACK wire. 5. Turn ignition switch to Off position. 6. Remove straight pin.		Greater than 0.5 volt	GO to 15.
		0.5 volt or less	Replace ignition module.



15	DISTRIBUTOR GROUND CIRCUIT CONTINUITY		
1. Separate distributor connector from harness. Inspect for dirt, corrosion, and damage. 2. Attach one lead of VOM to distributor base. 3. Measure resistance by attaching other VOM lead to BLACK wire in distributor connector. <b>NOTE: Wiggle distributor grommet when measuring.</b> 4. Reconnect distributor connector.		Less than one ohm	Test result OK. Inspect wiring harness and connectors between distributor and ignition module.
		Greater than one ohm	Inspect ground screw in distributor.



## REMOVAL AND INSTALLATION

### DISTRIBUTOR

#### Removal

1. Remove distributor cap. Position it and ignition wires to one side.
2. Disconnect and plug diaphragm assembly hose(s).
3. Separate distributor connector from wiring harness.
4. Rotate engine to align stator assembly pole and any armature pole.
5. Scribe a mark on distributor body and engine block to indicate position of distributor in engine, and position of rotor.
6. Remove distributor holddown bolt and clamp.
7. Remove distributor from engine. Do not rotate engine while distributor is removed.

#### Installation

1. If engine was rotated while distributor was removed:
  - a. Rotate engine until No. 1 piston is on compression stroke.
  - b. Align timing marks for correct initial timing.
  - c. Install distributor with rotor pointing at number one terminal position in cap, and armature and stator assembly poles aligned.
  - d. Make sure oil pump intermediate shaft properly engages distributor shaft. It may be necessary to crank engine after distributor gear is partially engaged in order to engage oil pump intermediate shaft and fully seat distributor in block.
  - e. If it was necessary to crank engine, again rotate engine until No. 1 piston is on compression stroke and align timing marks for correct initial timing.
  - f. Rotate distributor in block to align armature and stator assembly poles and verify rotor is pointing at No. 1 cap terminal.
  - g. Install distributor holddown bolt and clamp; do not tighten.

2. If engine was not rotated while distributor was removed and original distributor is being replaced:
  - a. Position distributor in engine with rotor and distributor aligning with previously scribed mark. Armature and stator assembly poles should also align, if distributor is fully seated in block and properly installed. Crank engine if necessary to fully seat distributor in block.
  - b. Install distributor holddown bolt and clamp; do not tighten.
3. If engine was not rotated while distributor was removed and new distributor is being installed:
  - a. Position distributor in engine with rotor aligned with previously scribed mark. If necessary, crank engine to fully seat distributor.
  - b. Rotate engine until timing marks for correct initial timing align and rotor is pointing at No. 1 one cap terminal.
  - c. Rotate distributor in block to align armature and stator assembly poles.
  - d. Install distributor holddown bolt and clamp; do not tighten.
4. If in steps 1-3 above the armature and stator assembly poles cannot be aligned by rotating distributor in block, pull distributor out of block enough to disengage distributor gear and rotate distributor shaft to engage a different distributor gear tooth and re-install distributor. Repeat steps 1-3 as necessary.
5. Connect distributor to wiring harness.
6. Install distributor cap and ignition wires. Check that ignition wires are securely connected to distributor cap and spark plugs.
7. Set initial timing to specification.
8. Tighten distributor holddown bolt to specification.
9. Recheck initial timing. Readjust if necessary.
10. Connect diaphragm assembly hose.

**REMOVAL AND INSTALLATION (Continued)****STATOR ASSEMBLY****Removal**

1. Remove distributor cap and rotor.
2. Separate distributor connector from wiring harness.
3. Using small gear puller or two screwdrivers, remove armature from sleeve and plate assembly. Use caution to avoid loss of roll pin.
4. Remove two screws retaining lower plate assembly and stator assembly to distributor base. Note there are two different screws.
5. Remove lower plate assembly and stator assembly from distributor.
6. Remove E-clip, flat washer and wave washer securing stator assembly to lower plate assembly and separate stator assembly from lower plate assembly. Note installation of wave washer.

**Installation**

1. Place stator assembly on lower plate assembly and install wave washer (outer edges up), flat washer and E-clip.
2. Install stator assembly/lower plate assembly on distributor base, being sure to engage pin on stator assembly in diaphragm rod.
3. Install two retaining screws in proper locations and tighten to specification.
4. Note there are two locating notches in armature. Install on sleeve and plate assembly with unused notch and new roll pin.
5. Connect distributor to wiring harness.
6. Replace distributor rotor and cap. Check that ignition wires are securely connected to cap and spark plugs.
7. Check initial timing.

**DIAPHRAGM ASSEMBLY****Removal**

1. Disconnect diaphragm assembly vacuum hose.
2. Remove diaphragm assembly attaching screws (2) and identification tag.
3. Disengage diaphragm rod from stator assembly pin and remove diaphragm assembly.

**Installation**

1. Adjust new diaphragm assembly per instructions included in carton.
2. Engage diaphragm rod with stator assembly pin.
3. Attach diaphragm assembly and identification tag to distributor base with two attaching screws and tighten to specification.
4. Ensure diaphragm rod is properly engaged with stator assembly pin.
5. Connect vacuum hose.

**DISTRIBUTOR CAP, ADAPTER AND ROTOR****Removal**

1. Remove the secondary wires.
2. Unclip the distributor cap and lift straight off the distributor.
3. Using a screwdriver, loosen the adapter attaching screws and remove the adapter.
4. Loosen the screws attaching the rotor to the distributor and remove the cap, if necessary.

**Installation**

1. If previously removed, position the distributor rotor with the square and round locator pins matched to the rotor mounting plate. Tighten screws to specification.
2. Install adapter in position and tighten attaching screws to specification.
3. Install the cap, noting the square alignment locator, and fasten the clips.
4. Install secondary wires, noting correct locations on the distributor cap.



## REMOVAL AND INSTALLATION (Continued)

### IGNITION WIRES

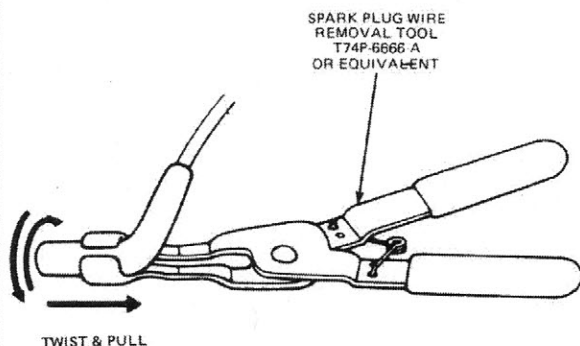
The ignition wires include the spark plug wires connecting the distributor cap to the spark plugs and the ignition coil wire connecting the distributor cap to the high voltage terminal of the ignition coil.

These wires are designed to reduce radio interference caused by high voltage discharges in the ignition system.

For testing, use an ohmmeter and check resistance from terminal in cap to spark plug terminal. Do not, under any circumstances, puncture an ignition wire with any type of probing device.

#### Removal

When removing wires from spark plugs, use Tool T74P-6666-A or equivalent. Grasp and twist the spark plug wire boot back and forth, then pull the wire off the plug. Do not pull directly on the spark plug wire, or it may separate from its terminal inside the spark plug wire boot.



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#### Installation

Whenever an ignition wire is removed from a spark plug or ignition coil or distributor cap terminal, silicone compound must be applied to the spark plug wire boot before it is reconnected. Using a small clean tool, lightly coat the entire inner surface of the boot with Ford Silicone Dielectric Compound (D7AZ-19A331-A or equivalent).

1. Attach each wire to proper terminal of distributor cap. Be certain wires are fully seated on terminals.
2. Remove wire separators from old wire set and install them on new set in approximately same position.
3. Connect wires to proper spark plugs. Install ignition coil wire. Be certain all wires are fully seated on terminals.

### SPARK PLUGS

#### Removal

1. Remove spark plug wire from spark plug, using Tool T74P-6666-A or equivalent with a twisting-pulling motion. Do not pull directly on spark plug wire.
2. Inspect spark plug wires for physical damage. Replace as necessary.
3. Clean area around each spark plug port with compressed air.
4. Remove spark plug.

#### Installation

1. Set spark plug gap to specification.
2. Install spark plug and tighten to specification.
3. Coat the inside of the spark plug wire boot with silicone compound and install on spark plug.

## CLEANING AND INSPECTION

### DISTRIBUTOR ASSEMBLY

Clean distributor using compressed air. Make sure no metal chips adhere to stator assembly. Inspect distributor to be certain all components are securely attached and stator assembly moves freely. Check that sleeve and plate assembly rotates freely on distributor shaft.

### DISTRIBUTOR CAP AND ROTOR

Wipe the distributor cap and rotor with a clean cloth dampened with soap and water. Remove any soap film and dry with compressed air.

Examine for cracks, carbon tracking, dirt or missing carbon button in cap. Replace as necessary. Review Distributor Cap and Rotor Installation and Removal.

## CLEANING AND INSPECTION (Continued)

### SPARK PLUGS

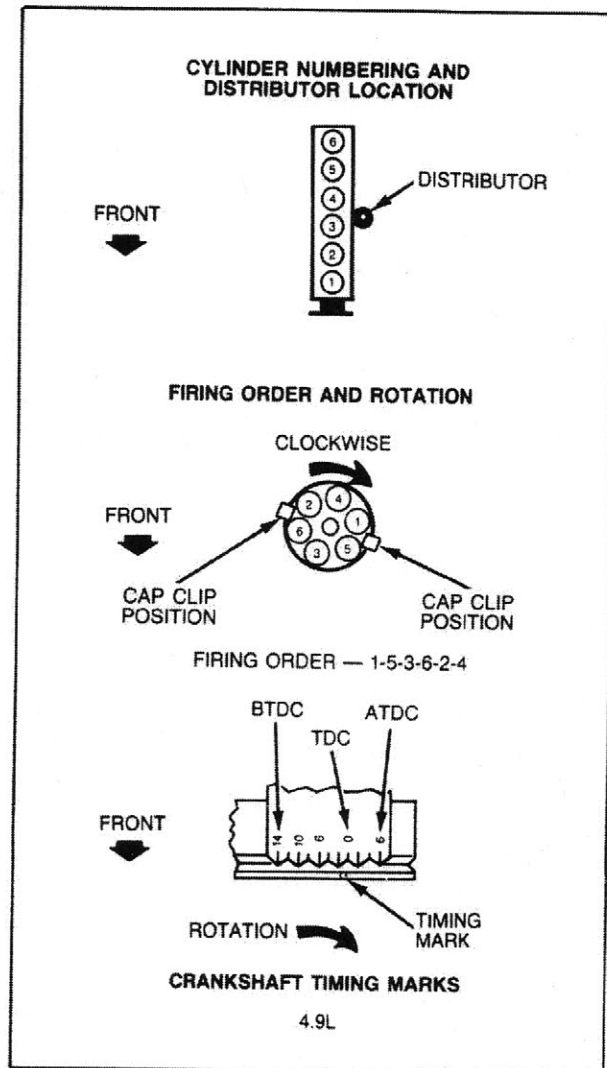
Examine the spark plug for cracked ceramic insulator and condition of firing end. Refer to page 02-19 for various conditions and actions.

### IGNITION WIRES


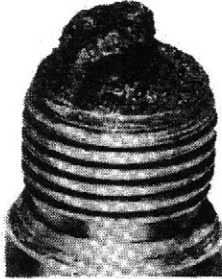


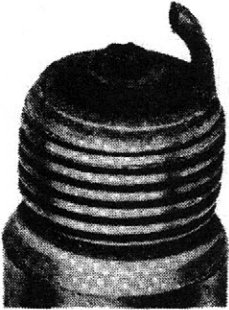
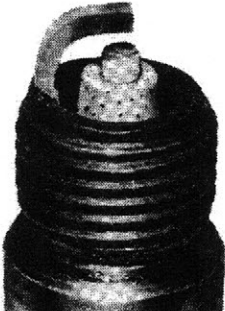
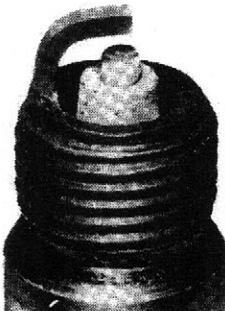
Without removing wires, inspect for visible damage such as cuts, pinches, cracked or torn boots. Replace as necessary.

### IGNITION COIL

Wipe coil tower with a clean cloth dampened with soap and water. Remove any soap film and dry with compressed air. Inspect for cracks, carbon tracking and dirt.



## CLEANING AND INSPECTION (Continued)

<p style="text-align: center;"><b>GAP BRIDGED</b></p>  <p>IDENTIFIED BY DEPOSIT BUILDUP CLOSING GAP BETWEEN ELECTRODES.</p> <p>CAUSED BY OIL OR CARBON FOULING. REPLACE PLUG, OR, IF DEPOSITS ARE NOT EXCESSIVE, THE PLUG CAN BE CLEANED.</p>	<p style="text-align: center;"><b>OIL FOULED</b></p>  <p>IDENTIFIED BY WET BLACK DEPOSITS ON THE INSULATOR SHELL BORE ELECTRODES.</p> <p>CAUSED BY EXCESSIVE OIL ENTERING COMBUSTION CHAMBER THROUGH WORN RINGS AND PISTONS, EXCESSIVE CLEARANCE BETWEEN VALVE GUIDES AND STEMS, OR WORN OR LOOSE BEARINGS. REPLACE THE PLUG.</p>	
<p style="text-align: center;"><b>CARBON FOULED</b></p>  <p>IDENTIFIED BY BLACK, DRY FLUFFY CARBON DEPOSITS ON INSULATOR TIPS, EXPOSED SHELL SURFACES AND ELECTRODES.</p> <p>CAUSED BY TOO COLD A PLUG, WEAK IGNITION, DIRTY AIR CLEANER, DEFECTIVE FUEL PUMP, TOO RICH A FUEL MIXTURE, IMPROPERLY OPERATING HEAT RISER OR EXCESSIVE IDLING. CAN BE CLEANED.</p>	<p style="text-align: center;"><b>NORMAL</b></p>  <p>IDENTIFIED BY LIGHT TAN OR GRAY DEPOSITS ON THE FIRING TIP.</p>	<p style="text-align: center;"><b>PRE-IGNITION</b></p>  <p>IDENTIFIED BY MELTED ELECTRODES AND POSSIBLY BLISTERED INSULATOR. METALIC DEPOSITS ON INSULATOR INDICATE ENGINE DAMAGE.</p> <p>CAUSED BY WRONG TYPE OF FUEL, INCORRECT IGNITION TIMING OR ADVANCE, TOO HOT A PLUG, BURNT VALVES OR ENGINE OVERHEATING. REPLACE THE PLUG.</p>
<p style="text-align: center;"><b>OVERHEATING</b></p>  <p>IDENTIFIED BY A WHITE OR LIGHT GRAY INSULATOR WITH SMALL BLACK OR GRAY BROWN SPOTS AND WITH BLuish-BURNT APPEARANCE OF ELECTRODES.</p> <p>CAUSED BY ENGINE OVERHEATING, WRONG TYPE OF FUEL, LOOSE SPARK PLUGS, TOO HOT A PLUG, LOW FUEL PUMP PRESSURE OR INCORRECT IGNITION TIMING. REPLACE THE PLUG.</p>	<p style="text-align: center;"><b>FUSED SPOT DEPOSIT</b></p>  <p>IDENTIFIED BY MELTED OR SPOTTY DEPOSITS RESEMBLING BUBBLES OR BLISTERS.</p> <p>CAUSED BY SUDDEN ACCELERATION, CAN BE CLEANED IF NOT EXCESSIVE, OTHERWISE REPLACE PLUG.</p>	

