

THE **FOUR** TWELVE VOLT IGNITION SYSTEMS AND HOW TO PROPERLY SERVICE THEM

To the mechanic servicing the ignition system, the extended use of 12 volts on passenger cars has brought to the fore, with increasing importance, some problems that do not exist on 6 volt equipped cars. In view of the fact that in 1956, 12 volts has become universal, the mechanic will be called upon to service more and more 12 volt equipped vehicles.

To service the 12 volt equipped car the mechanic must know a great deal more about the wiring circuit and must exercise precautions not needed on the 6 volt vehicles, otherwise trouble will most surely follow.

In servicing the 12 volt equipped vehicles the mechanic has to determine first of all which of *four* different systems is being used and service it accordingly. The four 12 volt systems differ mainly in the type of ignition coil that is used and the manner in which it is used. **Due to the differences in the circuits the 12 volt coils are not interchangeable, and the use of the proper coil for each system is an absolute must.**

Some of the troubles that may arise by using the wrong coil, range all the way from the can bursting open, burning out the coil, burning up the contact points, shortening the life of the points or non-operation of the coil itself.

To avoid using the wrong coil in the 12 volt system you are servicing, first consult the chart on the back of this bulletin to determine the correct one. Be sure to read the explanation and look at the wiring diagrams to help you detect the significant differences between these systems.

Don't ever be tempted to substitute the wrong type of coil in any of the 12 volt systems no matter what the circumstances may be, as any such substitution will inevitably result in customers' complaints and expense to you. The physical condition of a coil wrongly used in a 12 volt system immediately tells its own story and with evidence as obvious as that the guarantee is void in all such cases—which means money out of your pocket.

(See chart on reverse side)

SUMMARY OF TROUBLES IF THE WRONG COILS ARE USED IN 12 VOLT SYSTEM

1. If a 6 volt coil is used in the A and D systems, the coil will burn out and very often the can will burst open. If the coil is in a seamed can, the seam may be violently forced open; in the seamless type, the coil top may be forced out of the can together with some portion of the windings. Also the breaker points will burn up. The coil will be irreparably damaged and the guarantee voided.
2. If an A type coil is used in B and C systems, the coil will not operate properly or at all. (Very hard or no starting).
3. If a B or C type coil is used in A and D circuits, the points will burn and the coil housing may burst open as in paragraph 1.

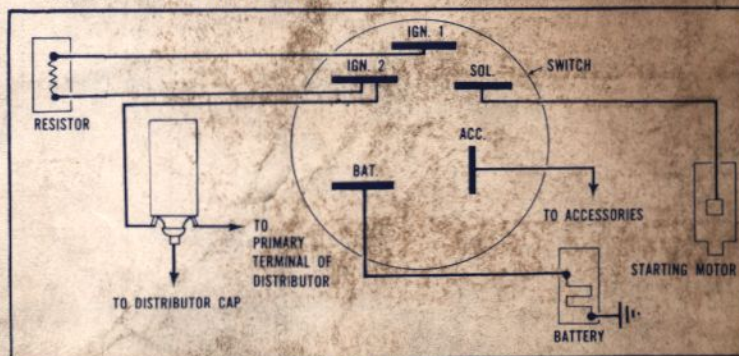
4. If a 6 volt coil is used in any of the four 12 volt systems, the breaker points will be subject to burning and short life. The coil will be damaged beyond repair.
5. If an open resistor is left in circuits B and C, there will be no ignition.
6. If a shorted resistor is left in circuits B or C—the coil may burst open or the coil winding will burn out rendering the coil non-operative.

CHECKS ON RESISTORS

Don't ever replace an "exploded" coil with a new one before checking the external resistor. The check is quick and easy. Simply connect one terminal of a voltmeter to the battery side of the resistor, and the other voltmeter terminal to a good ground. Turn on the ignition but don't start the engine. The voltmeter should give you a reading very close to the battery voltage. Now, leave one voltmeter terminal connected to ground and shift the other voltmeter lead to the coil side of the resistor. The voltmeter should now read several volts lower than before. If you get no reading now, the resistor is open. If you get the same or almost the same reading as before—the resistor is shorted. Whether you find the resistor open or shorted, it will be useless and a waste of time to do any further work without changing the resistor.

CAUTION 1. The resistors used in Delco, Ford, and Autolite equipment must not be used interchangeably. Incorrect combinations of coils and resistors in these systems can result in burned points, overheated coils, misfiring, lower coil outputs or poorer operation. The reason for this is that the correct resistors and coils in each system have been designed as matching units for correct or best operation. Make absolutely sure to use the correct resistor required for the system.

CAUTION 2. Extreme caution must be exercised in replacing Delco type Ignition Switches, because the terminal arrangement may not be the same on all Delco type ignition starter switches. When replacing a defective switch, it is imperative that the wires from the defective switch be attached to each correspondingly marked terminal on the new switch regardless of the physical position of the terminals on the new switch.

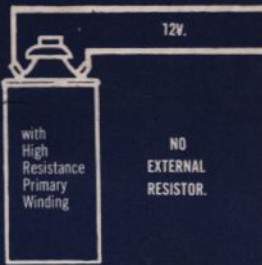
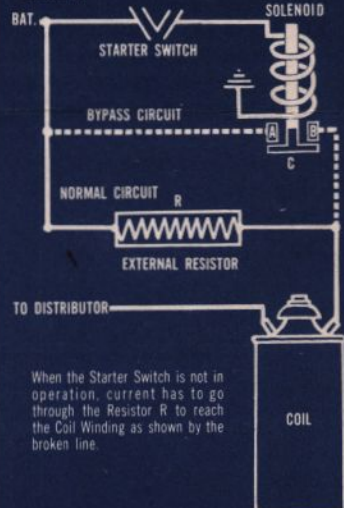
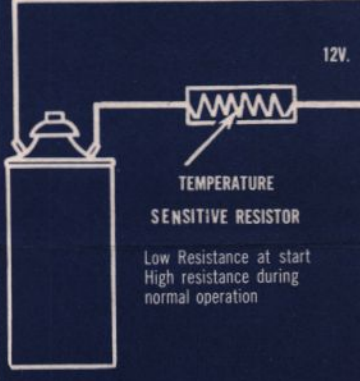
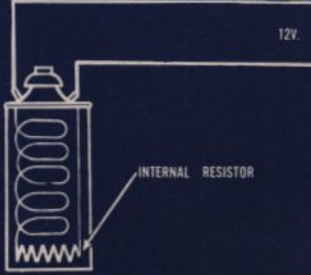


A Typical Delco Terminal Arrangement for Ignition Starter Switch

(continued on other side)

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THE FOUR TWELVE VOLT IGNITION SYSTEMS

DESCRIPTION OF 12 VOLT SYSTEM	APPLICATIONS	ORIG. NOS.	BLUE STREAK & STANDARD COIL	WIRING DIAGRAMS
<p>A. A straight 12 V. coil is used without any external or internal resistor in the primary circuit.</p>	<p>Many Truck, Bus, Tractor, Marine, Industrial and Special Equipment.</p> <p>Dodge (6) '56 Hudson (6) '56 Nash Amb. (6) '56 Plymouth (6) '56 Stude. (6) '56</p>	<p>Various</p> <p>CAF-4002,3,4</p>	<p>ACC-560-12 UM-12</p> <p>UC-350-12 UC-500-12</p>	 <p>with High Resistance Primary Winding</p> <p>NO EXTERNAL RESISTOR.</p>
<p>B. An external resistor of a constant value which does not change with temperature is incorporated into the system. The primary winding of the coil is similar to the winding of a 6 volt coil, although of a higher primary winding resistance value. Also, the ignition circuit is wired so that the external resistor is shorted out while the starter switch is in operation (See BLUE STREAK Service Bulletin #73-53). This is the most common Delco type 12 V. system. The 1956 Ford system is similar to the above, but no provision is made for shorting out the resistor during starting.</p>	<p>Buick #50-70 '53 All '54-'56 Cadillac All '53-'56 Chevrolet (6) '55-'56 Hudson Wasp (8) '56 (D.R.) Nash Rambler (6) '56 (D.R.) Statesman (6 & 8) '56 Olds '53-'56 Packard '55-'56 (D.R.) Pontiac '55-'56 Stude. (8) '56 (D.R.)</p> <p>Chev. (8) '55-'56 Pontiac (Can.) (8) '56</p> <p>Ford All '56 Lincoln All '56 Mercury All '56</p>	<p>1115081 1115082 1115083 1115084 1115085 1115086 1115087</p> <p>1115087 coil with 1929496 bracket</p> <p>FAC-12029-A, B6A-12029 & B</p>	<p>DR-2 or DR-2X Resistance Unit RU-2 Fits all '54-'56 applications exc. '55 Packard</p> <p>DR-3 or DR-3X Resistance Unit RU-2</p> <p>FD-471 or FD-471X Resistance Unit RU-1</p>	<p>When Starter is engaged, Contacts A and B are momentarily connected by Contact C on Starter Switch Solenoid. Current then flows from Battery to Coil thru parallel circuit (broken line) thus bypassing the external Resistor, C.</p>  <p>BAT. STARTER SWITCH SOLENOID</p> <p>BYPASS CIRCUIT</p> <p>NORMAL CIRCUIT R</p> <p>EXTERNAL RESISTOR</p> <p>TO DISTRIBUTOR</p> <p>COIL</p> <p>When the Starter Switch is not in operation, current has to go through the Resistor R to reach the Coil Winding as shown by the broken line.</p>
<p>C. An external resistor, whose resistance value does change with temperature, is incorporated into this system. Therefore, when the car is being started, the cold resistor with lower resistance value permits a higher current through the coil primary resulting in easier starting. As the resistor warms up, its resistance increases to cut down the primary current through the coil for normal operation. This is most commonly used on the Autolite 12 V system.</p>	<p>Chrys. '56 DeSoto (8) '56 Dodge (8) '56 Hudson Hornet (8) '56 (A.L.) Nash Amb. (8) '56 (A.L.) Packard (8) '55-'56 (A.L.) Plymouth (8) '56 Studebaker (8) '56 (A.L.)</p>	<p>CAD-4001,2,3,4</p>	<p>AL-4K or AL-4KX Resistance Unit RU-3</p>	 <p>12V.</p> <p>TEMPERATURE SENSITIVE RESISTOR</p> <p>Low Resistance at start High resistance during normal operation</p>
<p>D. The resistor is incorporated inside the coil housing itself.</p>	<p>Chrysler Imperial '53-'55</p>		<p>None</p>	 <p>12V.</p> <p>INTERNAL RESISTOR</p>

