MASTER TECHNICIANS
SERVICE CONFERENCE

REFERENCE BOOK
'72-3

IGNITION SYSTEMS FOR '72

PLYMOUTH · DODGE · CHRYSLER · IMPERIAL · DODGE TRUCK

CHRYSLER
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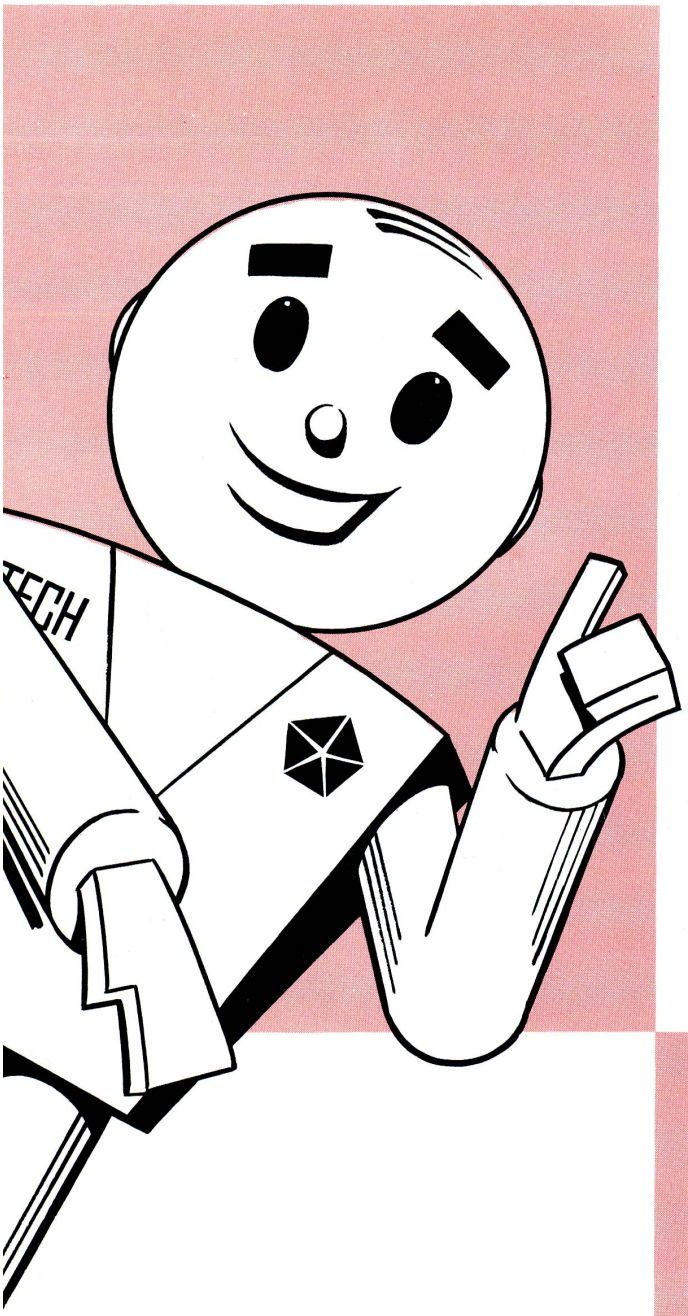

Tech Sez:

It's a fact that a misfire in one cylinder can increase undesirable exhaust emissions as much as ten times. Chrysler engineers, and others, have found that an ignition system that has not been properly maintained is the most frequent cause of misfiring. Generally speaking, the breaker points have a shorter service life than any of the other ignition components. So, Chrysler engineers have developed a new electronic ignition system that eliminates the breaker points and the service and performance problems associated with them. The new electronic system controls ignition timing and dwell very accurately, resulting in maximum exhaust emission control with minimum ignition system service.

This reference book, as usual, is a replay of the film and record with more detailed coverage of everything included in the film.

After reading it you will have a working knowledge of the electronic ignition system, troubleshooting procedures and maintenance requirements. It is easy to check the system using the tester designed for that purpose. Learn to use and trust your electronic ignition tester and you won't have any trouble diagnosing any electronic ignition problem that may come your way. Read on!

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INTRODUCTION

The Chrysler electronic ignition was first introduced in 1971 as a running change on models equipped with a 340 C.I.D. engine and a manual transmission. It wasn't introduced until May, so chances are that you haven't run across too many of them. However, for 1972, it has a much wider application. It is standard on all eight-cylinder models sold in California and available as an extra-cost option in other states. And, eventually, it will be available on 6-cylinder models.

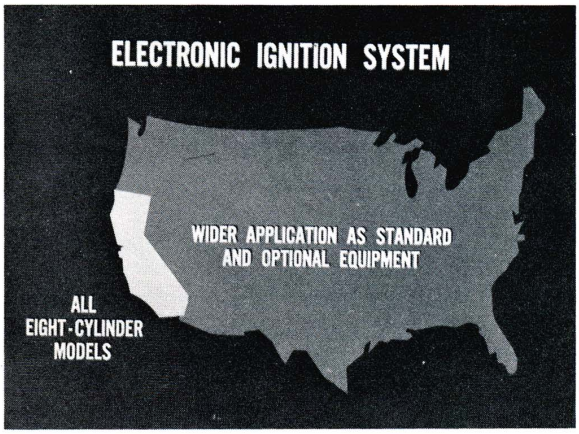

Fig. 1—Electronic Ignition Application for '72

Breaker Point Ignition Service

Before going any further with the electronic ignition system, let's review the periodic service required with breaker-point ignition. This will help you to appreciate the advantages of the new breakerless system. The present breaker-point ignition has been steadily improved and is an excellent system. However, regular periodic service is required to maintain satisfactory ignition performance. Of all the breaker-point ignition components, the breaker points have the shortest service life. Of course, spark plugs eventually wear out, but the coil, condenser and ballast resistor have been improved to the point that they should virtually last the life of the car.

POINT LIFE AFFECTS ENGINE PERFORMANCE

In an engine equipped with breaker-point ignition, there is a slight but continuous change in ignition timing over the life of the points. That's because the contact gap closes and timing starts to retard as a result of breaker-point burning and rubbing-block wear. As the contact gap closes, the dwell in a breaker-point ignition system is also affected.

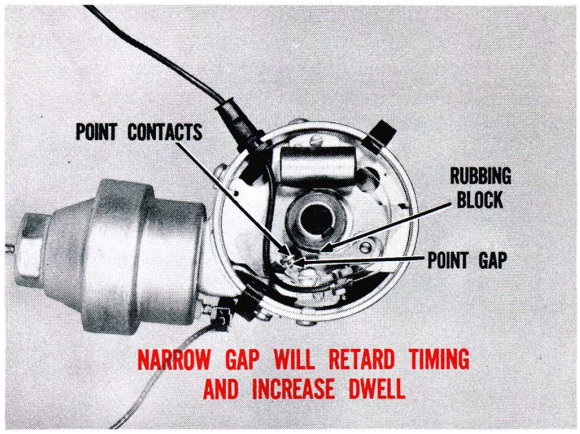

Fig. 2—Even if kept adjusted, points will deteriorate

THEY WON'T LAST FOREVER

Engine performance can be maintained as the points wear by resetting the timing or readjusting the contact gap if the dwell is noticeably off. However, even when the breaker points are kept properly adjusted, they will deteriorate in normal usage due to metal transfer caused by arcing across the points, oxidation, and erosion. Eventually, this will cause misfiring.

MISFIRING ALSO AFFECTS PLUG LIFE

When the contacts deteriorate to the point where they cause misfiring, they should be replaced. When an engine begins to misfire, it also causes spark plug deterioration and shortens plug life considerably. Unfortunately, the average owner does not have a tune-up performed often enough to prevent, or for that matter, to *correct* misfiring.

With the electronic ignition system, periodic distributor service will be a thing of the past since the breaker points have been replaced by electronic components and circuitry.

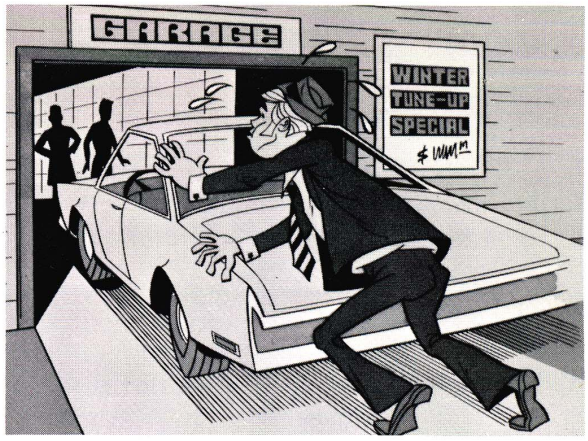

Fig. 3—Tune-up needed to correct misfiring

ELECTRONIC IGNITION COMPONENTS

The distributor housing, the advance mechanism, the rotor and the distributor cap are the same for the new electronic ignition and the conventional breaker-point ignition. Both systems use the same type ignition coil and spark plugs. A new dual ballast resistor is used. This will be covered later.

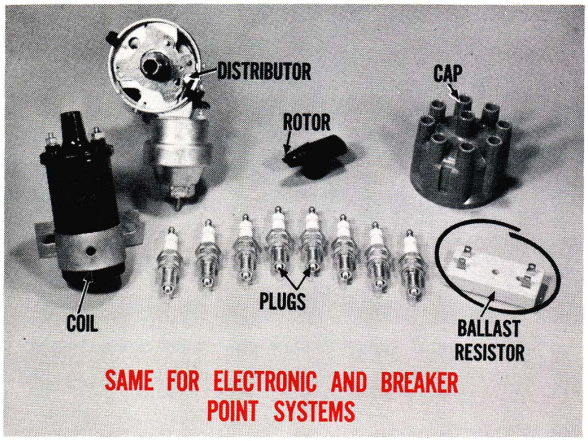

Fig. 4—Points replaced by electronic circuitry

Inside the Distributor

With the exception of the drive and advance mechanisms, the components inside the electronic distributor are brand new. The pick-up unit and the reluctor have physically replaced the cam and breaker points. The word "physically" is used because although they do the same basic job, they actually do it quite differently. A condenser is no longer required and this will also be explained in later paragraphs.

PICK-UP UNIT

The pick-up unit consists of a permanent magnet and a coil that is wound around a pole piece. The pole piece is an extension of the mounting bracket

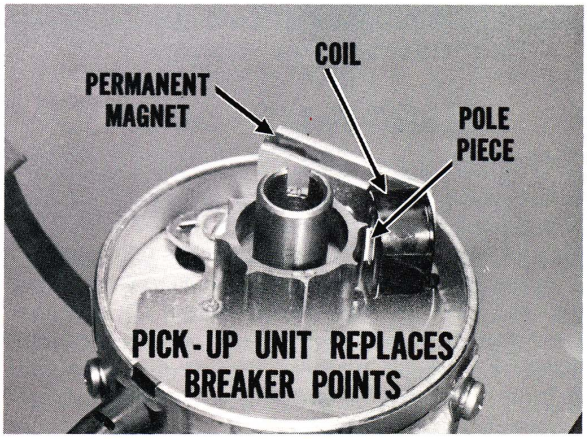

Fig. 5—Essential parts of the pick-up unit

and is attached to the permanent magnet. Because of the arrangement, the pick-up unit resembles a horseshoe-type magnet with the reluctor end of the pole piece acting as one of the poles.

RELUCTOR

The reluctor is a gear-like component that is attached to the distributor shaft in the same position as the cam in a breaker-point ignition. The reluctor is not a magnet but it does provide a better magnetic path than air. In other words, it is capable of reducing *reluctance* (resistance to magnetic flow) and that's why it is called a *reluctor.* More about this later.

In a very general way, the reluctor and pick-up unit do electrically what the cam and rubbing block do mechanically in a breaker-point ignition.

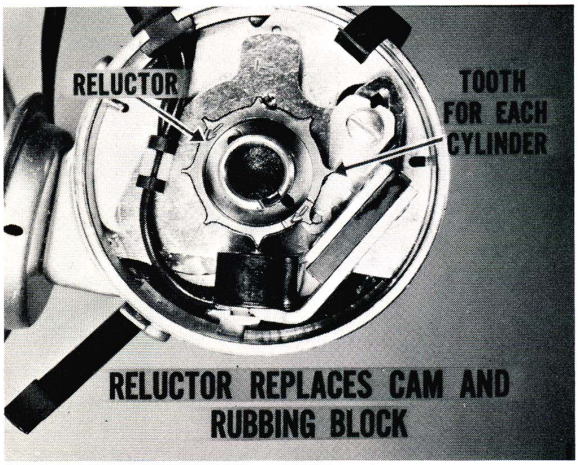

Fig. 6—Reluctor looks and acts different than cam

SIMILAR, BUT NOT THE SAME

Although the electronic distributor components replace the cam and breaker points, they operate quite differently. For one thing, the pick-up unit is *not* a set of points, and there must be *no* contact between the reluctor and the pick-up unit.

BREAKER POINT REVIEW

A short review of the breaker-point system will help you understand how the reluctor and pick-up unit work. In a breaker-point system, the current flowing through the primary winding of the ignition coil is interrupted when the breaker points are opened by the rotating cam. The collapsing magnetic field in the ignition coil primary induces enough voltage in the ignition coil secondary to fire the plugs.

MAGNETIC FIELD IN PICK-UP UNIT

In the electronic ignition system, a permanent magnet in the pick-up unit provides a magnetic field from the pole piece to the permanent magnet itself. This magnetic field passes through the coil that is wound around the pole piece. The magnetic field is relatively weak because the air gap between the pole piece and the magnet does not provide a good magnetic path between the two.

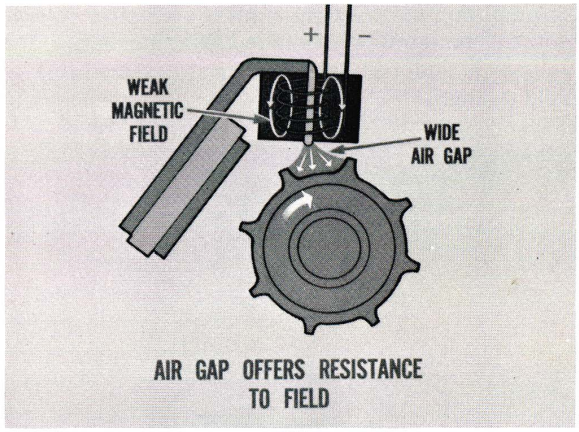

Fig. 7—Permanent magnet provides weak magnetic field

RELUCTOR TOOTH PROVIDES BETTER PATH

As a tooth of the reluctor approaches the pick-up it provides a better path than the air gap and the strength of the magnetic field in the pick-up is increased. Increasing the field strength at the pick-up coil induces a *positive* voltage at one terminal of the coil.

It should be understood that this voltage is induced as a result of the *changing* (increasing) *field*

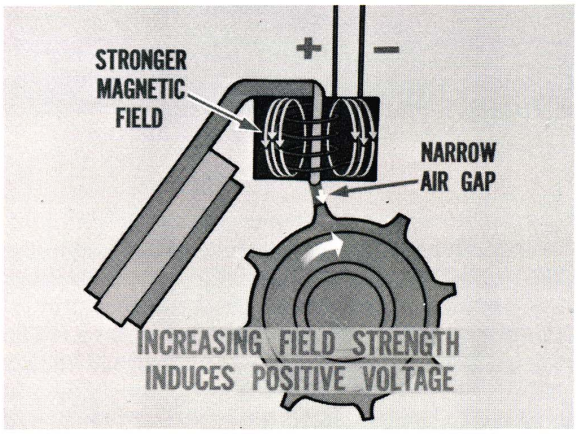

Fig. 8—Field strength increases as tooth approaches pole

strength and is not caused by physical movement of the field or the pick-up coil.

The positive voltage continues to build until the reluctor tooth is exactly opposite the pole piece.

TOOTH PASSES, VOLTAGE TURNS NEGATIVE

As soon as the reluctor tooth passes the pole piece, the air gap starts to increase and the field strength begins to decrease. The decreasing field strength through the coil winding induces a *negative* voltage at the same terminal of the coil winding. Again, the voltage is induced by the change (reduction) in field strength.

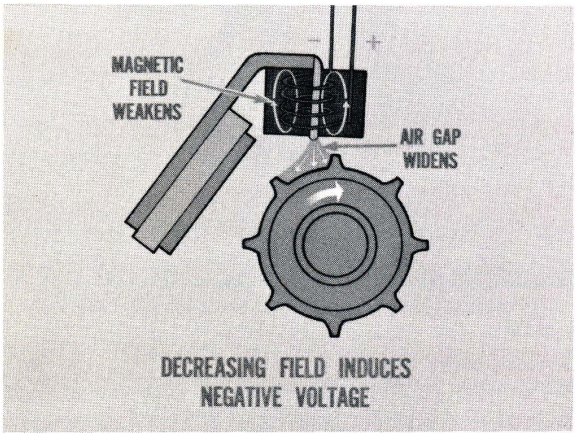

Fig. 9—Voltage at pick-up coil changes polarity

MOVEMENT INDUCES VOLTAGE

No voltage is induced in the pick-up coil unless the reluctor is moving. The rapid increase and decrease of the magnetic field as the rotating reluctor teeth approach and pass the pole piece is what induces the positive then the negative voltage.

The induced voltage is very small . . . little more than a tiny electrical signal that is fed into the electronic control unit.

The Control Unit

The function of the "signal" voltage induced in the pick-up unit is not the same as that of the contacts in a breaker-point ignition which open and interrupt the primary current in the ignition coil. The pick-up voltage is a precisely timed signal. It triggers the electronic circuitry in the control unit and in turn this *controls* the interruption of the current flowing through the primary windings of the ignition coil. But let's consider primary current flow in greater detail.

PRIMARY CURRENT FLOW

In the electronic ignition system, battery current flows through the primary winding of the ignition coil, and then through the control unit which is grounded. This maintains current flow in the ignition coil primary winding pretty much the same as the closed contacts do in a breaker-point ignition.

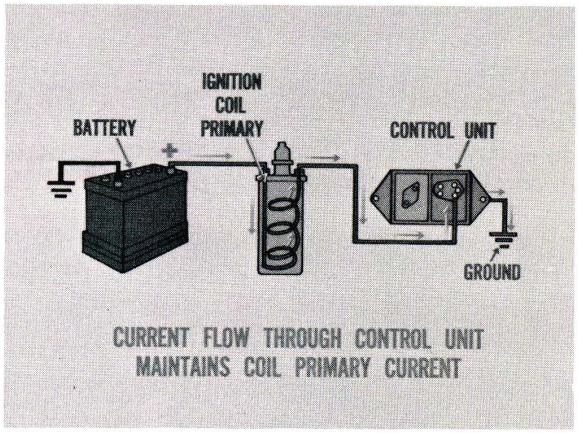

Fig. 10—Current flows when pick-up voltage is positive

The control unit remains "on" or activated and current flows through the primary coil windings as long as a *negative* voltage from the pick-up is *not* applied to it.

NEGATIVE VOLTAGE INTERRUPTS CURRENT IN COIL

When the reluctor passes the pole piece, and the pick-up voltage turns negative, it de-activates – or

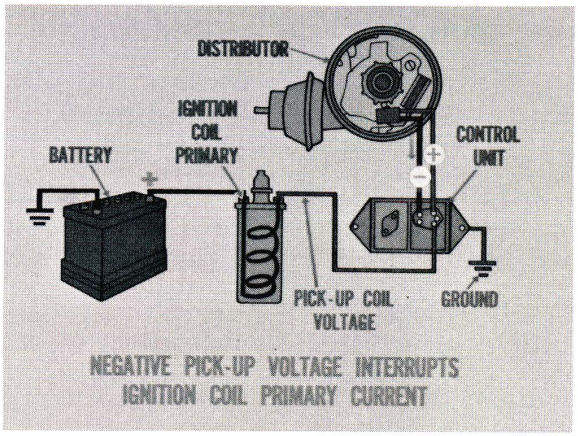

Fig. 11—Negative voltage de-activates control unit

"turns off" the control unit circuitry. At this point, current cannot flow through the control unit to ground and therefore the current through the ignition coil primary winding is interrupted. Like in all induction coil ignition systems, this interruption of the current flow in the primary circuit induces enough voltage in the secondary windings of the ignition coil to fire the spark plugs.

CONTROL UNIT ALSO DETERMINES DWELL

The control unit determines electronically how long the ignition coil primary current is allowed to flow before it is interrupted. In other words, it determines the dwell in the electronic system. Since the control unit circuitry is sealed and has no moving parts, the dwell cannot be changed.

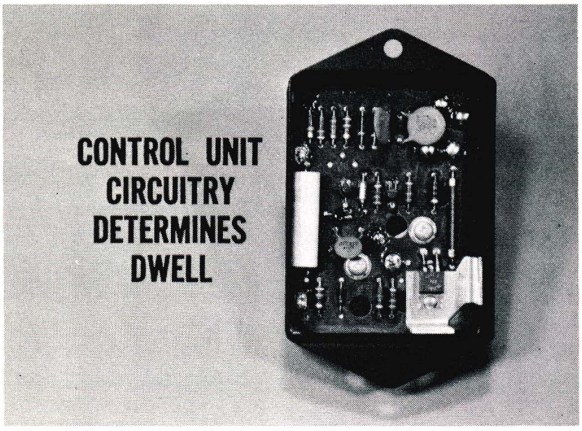

Fig. 12—Control unit circuitry before sealing with epoxy

The reluctor and the pick-up unit determine ignition timing. The control unit determines dwell.

Fig. 13— Tachometer and timing light will operate

However, it takes both of them working together to time the interruption of the ignition coil primary current and the firing of the plugs.

There is no reason to use a dwell meter when testing or checking an electronic ignition system. *Dwell will be correct unless the control unit has been damaged* and this possibility can be *easily* and *quickly checked out with your electronic ignition tester.* On the other hand, your tachometer and timing light will operate just as well with this system as they will with a breaker-point system.

BALLAST RESISTOR TAKES A DUAL ROLE

The ballast resistor for the electronic system plays a dual role. On one side is the half-ohm ballast resistor that is the same as in a breaker-point system. It maintains constant primary current with variations in engine speed. This protects the ignition coil against high current flow at low engine speed. This ballast resistor is bypassed when cranking to apply full battery voltage to the coil. The other side of the dual unit is a five-ohm resistor. It protects the control unit by limiting current flow in the electronic part of the circuit.

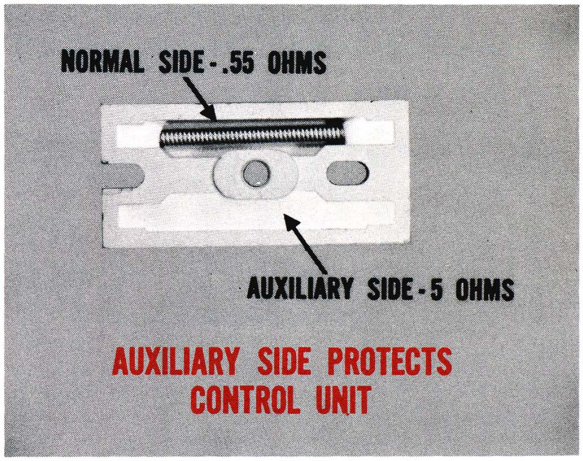

Fig. 14—Dual ballast resistor unit

CONDENSER NO LONGER NEEDED

In a breaker-point ignition, the condenser helps the coil develop higher voltage because it speeds up the collapse of the magnetic field. It also increases ignition point life because it reduces arcing as the contacts open. The condenser is not needed in the electronic ignition because there are no points and the collapse of the field in the ignition coil primary is controlled by the electronic circuitry in the control unit.

TROUBLESHOOTING

Special tool C-4166 is an electronic ignition tester designed specifically for the Chrysler system. It will enable you to check the components in the primary circuit and their associated wiring. This essential troubleshooting tool is easy to use and accurate. Learn to use it and you'll find that it's a real time-saver.

GET ACQUAINTED WITH THE TESTER LEADS

As you probably know, instructions for using the tester are included on the back panel of the instrument. Because of the limited space available, these instructions are quite condensed and a little extra explanation will help you get acquainted with this valuable diagnostic tool.

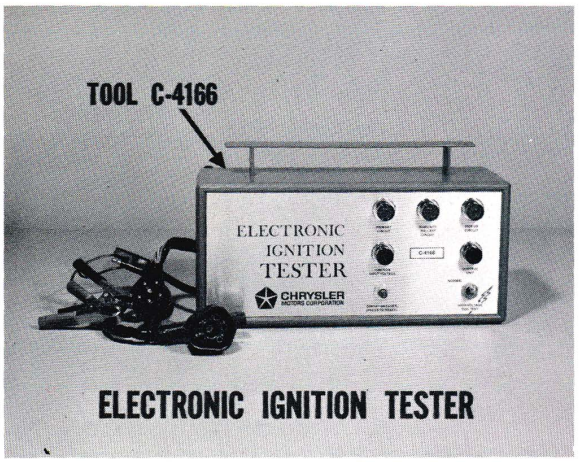

Fig. 15– Essential for troubleshooting

The two leads with five-prong connectors are used to connect the test instrument into the car's ignition circuit for on-car testing. The test leads with the two alligator-type battery clips are not used for on-car testing . . . they are used only for bench-testing of electronic ignition components. Incidentally, the harness for the battery clip leads also includes a dual male-female connector which is used for bench-testing the pick-up unit. It is not used for on-car testing.

ABOUT THOSE INSTRUCTIONS ON THE TESTER

There are actually two sets of instructions on the back of the instrument. The first set of instructions are for *component* or *bench testing.* Disregard them when troubleshooting the system on the car. The diagnosis chart at the right side of the panel does not apply to bench testing . . . it is to be used only in connection with on-car testing.

The 6-step system test instructions and the diagnosis chart are used for *on-car troubleshooting.*

GREEN FOR "GO" – RED FOR "STOP"

The chart is based on the condition of the lights on the front of the tester. When testing the system on the car the two green lights should come on as soon as the tester is connected into the system. This does not necessarily mean that everything is okay in the entire system but it does mean that you can proceed with the tests. On the other hand, if both or either of the green lights do not come on, trouble exists which must be corrected before proceeding with the remainder of the tests.

The three red lights on the front of the tester are "trouble lights". If one or more of them comes "ON", something is definitely wrong and the appropriate item indicated by an "X" on the chart should be checked. In other words, an "OFF" condition in the green lights or an "ON" condition with the red lights indicates trouble. Remember, these thumb rules apply to on-car tests . . . they do not apply to bench testing which will be covered under a later heading.

Although the instructions and chart on the back of the tester are complete, let's go through the on-car test procedure step-by-step.

On-Car System Testing

If performance problems exist, the first thing to check on the ignition system is the rotor and dis-

tributor cap for cracks or corroded terminals. Hairline cracks are sometimes difficult to see, so look the cap and rotor over very carefully. Visually inspect the secondary ignition cables and check their performance with an ohmmeter or an ignition oscilloscope. Then check the spark plugs and regap or replace them if necessary.

CONNECTING TESTER INTO SYSTEM

With the ignition switch off, remove the screw and disconnect the wiring harness from the control unit. Connect the female connector of the tester to the control unit and the male connector to the wiring harness of the system to put the tester in the ignition system circuit.

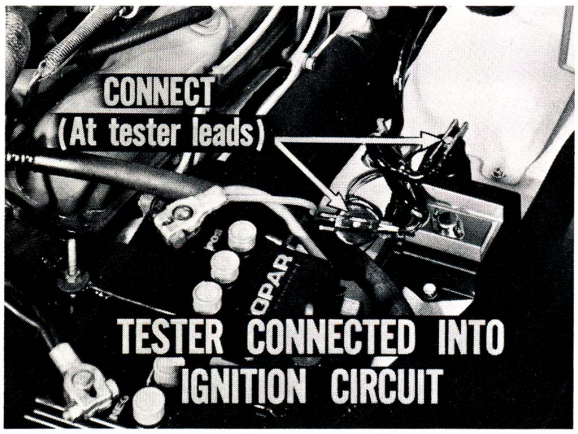

Fig. 16– Tester connections are easily made

TWO GREEN – NO RED FOR A GOOD SYSTEM

Turn the ignition switch on – *don't start the engine* – observe the tester. If both green lights on the front panel come on and all the red lights remain off, this indicates that all components and wiring in the primary circuit are good.

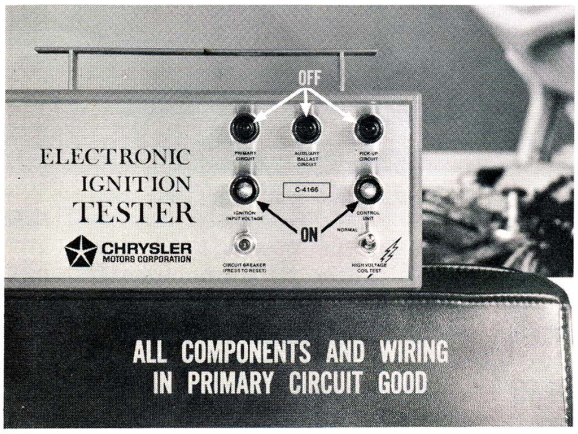

Fig. 17– Both green lights on – rest of lights off

INPUT VOLTAGE MUST BE SUFFICIENT

The green light labeled IGNITION INPUT VOLTAGE must come on to indicate sufficient voltage for the tester to operate. It *must* remain *on* through all tests. If the light is off at any time, it means that there is insufficient input voltage to the tester to complete the tests.

Fig. 18– Tester needs sufficient voltage to operate

BATTERY MUST BE FULLY CHARGED

If the green IGNITION INPUT VOLTAGE light does not come on, the first thing to do is to make sure that the battery is fully charged. If the battery is okay, check the battery terminal connections and make sure that the control unit is properly grounded. Also check the ignition switch and the wiring to and from the switch.

Fig. 19– Control unit test independent of others

OTHER GREEN LIGHT FOR CONTROL UNIT

If the green light labeled CONTROL UNIT does not come on, the control unit is faulty and must be replaced. Each test light is completely independent of the others; and if the control unit is good, this green light will be on even if there is a fault in the pick-up unit, the dual ballast resistor, or the remainder of the ignition primary circuit.

CHECK SECONDARY TO MAKE SURE

To complete checking the system, pull the ignition coil secondary wire from the distributor cap and hold it near the engine block. Actuate the HIGH VOLTAGE COIL TEST switch and observe the length and intensity of the spark as you pull the wire slowly away from the block to increase the spark gap. A long blue spark indicates that coil output is okay.

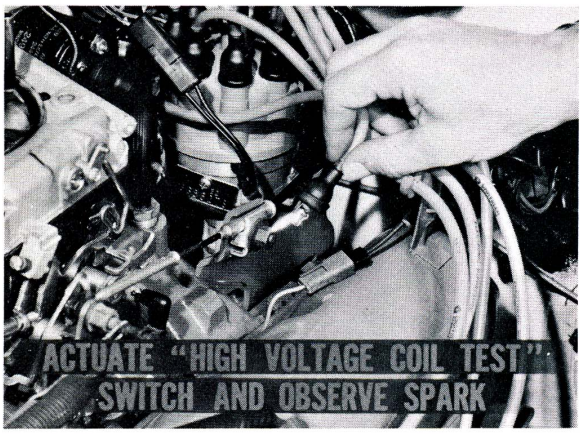

Fig. 20—Long blue spark means coil is okay

WHEN THE SPARK STOPS

Move the coil wire away from the block until the spark no longer jumps to ground and closely observe the coil tower to make sure that there is no arcing across the tower. If no arcing occurs, this completes the testing and indicates that the ignition coil is okay.

If the primary circuit and the coil are okay but an ignition problem is evident, check the spark plug cables with an ohmmeter or ignition oscilloscope and inspect the spark plugs.

RED LIGHT IS FOR FIVE-OHM SIDE

The red light labeled AUXILIARY BALLAST RESISTOR on the tester will light if the five-ohm side of the dual ballast resistor is bad. If the red light comes on, the dual ballast resistor must be replaced. The half-ohm side of the dual ballast resistor is checked with the rest of the primary circuit by the tester. When installing a new resistor, make sure that the connectors are correctly installed.

Fig. 21—This test only for five-ohm side

PRIMARY CIRCUIT CHECK

If the red light labeled PRIMARY CIRCUIT on the tester panel comes on, check the ignition coil primary, the suppression capacitor, the half-ohm side of the dual ballast resistor, and the wiring harness for an open in the circuit. Replace any parts that are faulty or do not meet specifications.

Fig. 22—Replace parts that do not meet specs

DOUBLE CHECK PICK-UP UNIT

If the red light labeled PICK-UP CIRCUIT comes on, the pick-up unit or its wiring is faulty and the pick-up unit must be replaced. Even if the light does not come on, it's a good idea to flex the wiring from the pick-up unit to double-check it. If the red light blinks while doing this, the pick-up unit wiring is bad and the unit should be replaced.

Fig. 23—Red light means pick-up must be replaced

CIRCUIT BREAKER PROTECTS TESTER

The electronic ignition tester is equipped with a circuit breaker to protect the tester from overloading when testing a shorted control unit. If the circuit breaker opens, the red button at the bottom of the panel will pop out. If it does, wait one full minute, then reset the circuit breaker by pushing the button in and continue testing.

Fig. 24—Push red button in to reset circuit breaker

Component On-Bench Tests

The tester can be used for bench-testing the control unit and the pick-up unit independently. The test lead harness with the two battery clips and the pick-up unit connector is used for bench tests. A fully charged battery is also necessary for the bench tests. It is *not* necessary to ground the component being tested. Component tests are to be used to check new units prior to installation or to double-check units removed from the car.

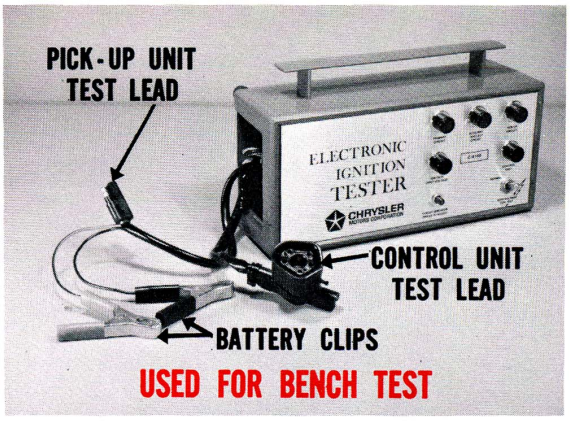

Fig. 25—Bench test requires fully charged battery

PICK-UP UNIT BENCH TEST

Hook the two battery clips to a fully charged battery . . . the red clip on the positive post and the black one on the negative. To test the pick-up unit, mate the connector from the pick-up unit wiring with the pick-up connector test lead from the tester. If the red light labeled "PICK-UP CIRCUIT" comes on, the pick-up unit is faulty and must be replaced. If the light does not come on, double-check the pick-up circuit by flexing the wiring from the pick-up unit. If the red light blinks when doing this, the wiring is bad and the pick-up unit cannot be used.

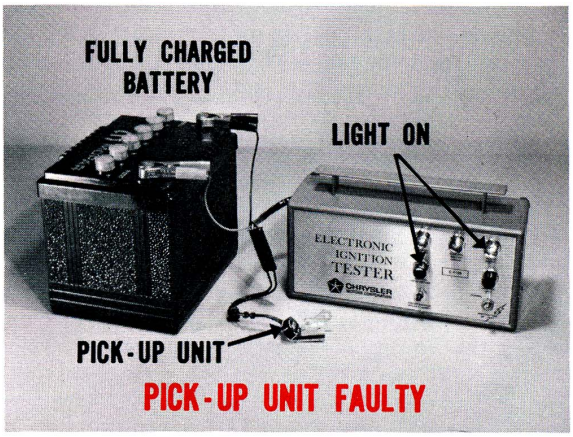

Fig. 26—Flex wiring to double-check pick-up unit

CONTROL UNIT BENCH TEST

To bench-test the control unit, simply plug the five-pin female tester lead into the control unit with the clips still connected to the battery. If the green light labeled "CONTROL UNIT" does not come on, the control unit is faulty.

Fig. 27—If light is on, control unit is okay

IGNORE OTHER LIGHT FOR BENCH TESTS

When bench-testing the pick-up unit, the green "CONTROL UNIT" light will be *off*, and the red "PRIMARY CIRCUIT" and red "AUXILIARY BALLAST CIRCUIT" lights will be *on*. This is normal because there is no input for these components when bench-testing the pick-up unit.

When bench-testing the control unit, all three red lights will be on because the ballast resistor, pick-up unit and coil primary circuits are not connected into the tester circuit. So when bench-testing you need only be concerned with the green input voltage light – which must be on to indicate sufficient voltage – and the green "CONTROL UNIT" light. All others can be ignored.

Distributor Maintenance

There is an adjusting slot on the distributor plate that can be used to change the air gap between the reluctor tooth and the pole piece of the coil. Unlike breaker points, reducing the air gap will not retard the timing. Since dwell is determined by the control unit and is independent of the pick-up unit, changing the air gap will not affect timing or dwell. However, the gap between the pick-up and reluctor should be properly set.

"HARD-START" FROM WIDE PICK-UP GAP

One of the main advantages of the electronic ignition system is improved starting; because with no points, the possibility of arcing across the points at starting has been eliminated. However, a pick-up gap that is too wide can cause starting problems.

As the air gap between the reluctor and the pole piece is increased, field strength decreases. In addition, low-cranking means low reluctor speed. The combination of weak field and slow changes in field strength results in very low voltage in the pick-up unit. This "weak-signal" condition can cause hard starting. In fact, there may even be a "no-start" condition if the gap is too wide.

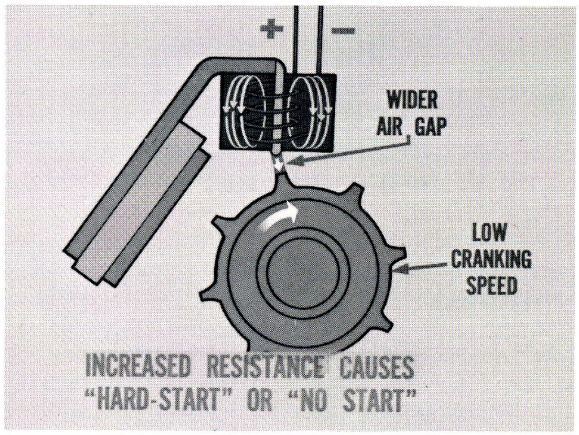

Fig. 28—Weak field reduces pick-up signal voltage

CHECK OTHER POSSIBILITIES

If you get a "hard-start" or "no-start" condition, *don't* immediately *blame the pick-up gap* and change the adjustment. Make sure that the fuel system and the rest of the ignition system are okay. Although setting the pick-up gap correctly is a *must* when installing a new pick-up unit, the gap does not change or increase in service and does not require periodic adjustment. The main reason for the minimum air gap specification is to make sure the reluctor doesn't contact the pole piece as the vacuum plate moves.

USE NON-MAGNETIC FEELER GAUGE

When checking the pick-up gap, a .010" feeler gauge should not slip between the end of the pick-up coil core and an aligned reluctor tooth.

CAUTION: A feeler gauge can be forced between the pick-up coil and reluctor tooth when the air gap is properly adjusted, so do not use force when checking with the .010" feeler.

If it is necessary to set pick-up air gap, loosen the pick-up adjusting screw, align a reluctor tooth with the pick-up core and insert an .008" feeler between the reluctor tooth and pick-up core. Tighten the pick-up adjusting screw with the .008" feeler in

place. After setting the air gap, run the distributor on a test stand and apply vacuum to make sure that the reluctor teeth do not strike the pick-up core during the vacuum advance check.

It will be necessary to use non-magnetic feeler gauges because a feeler gauge that is attracted to the magnetism of the pole piece will give a false "feel" or drag. If non-magnetic feeler gauges are not available, brass shim stock of the proper thickness can be used.

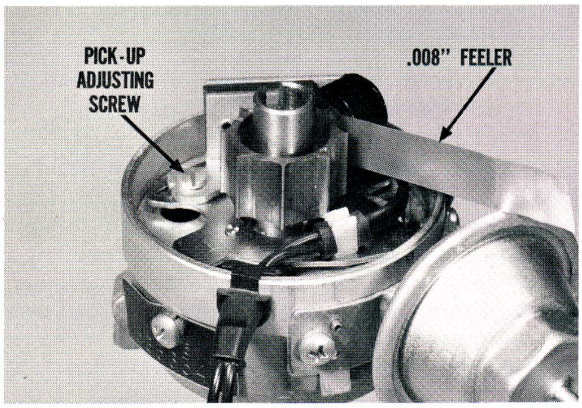

Fig. 29—Use brass shim stock of proper thickness

DON'T FOOL WITH THE RELUCTOR

The reluctor teeth may appear to you to be a little rough at the edges. Do not try to clean them up by filing the edges. You may file too much and round the edges of the teeth. A sharp edge is needed to quickly decrease the magnetic field and induce the negative voltage in the pick-up coil. If the teeth are rounded, the voltage signal to the control unit will be erratic.

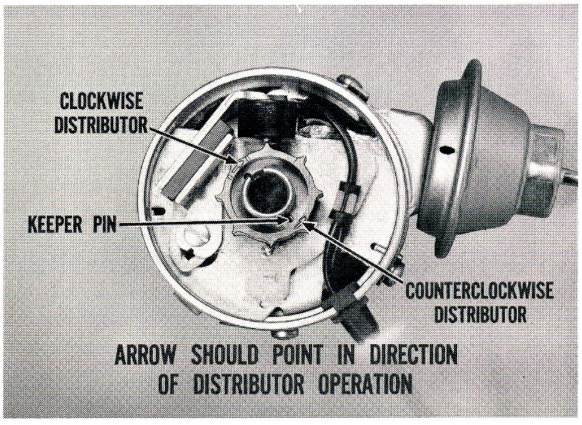

Fig. 30—Turn reluctor 180 degrees if arrow is wrong

RELUCTOR MUST BE INSTALLED PROPERLY

There are two small arrows on the reluctor that point in opposite directions. In a clockwise distributor, the arrow at the keeper pin that holds the reluctor in place should point clockwise. In a counterclockwise distributor, the arrow on the keeper pin should point counterclockwise. If the arrow at the keeper pin does not point in the direction of the distributor rotation, remove the reluctor, turn it one-hundred-eighty degrees, and reinstall it. When removing the reluctor, be careful not to lose the keeper pin.

Control Unit Replacement

There are three different control units. The part on the front of the unit that resembles a bracket is a heat sink. Each unit is anodized a different color to identify the three types of control unit. The heat sink on the control unit will be either gold, red, or blue. The different colors identify engine applications for each control unit.

RED AND BLUE HAVE SPEED LIMITERS

The control units with the red and blue heat sinks are equipped with a speed limiter. The speed limiter is an additional circuit that is built into the control unit to limit the r.p.m. range on certain engines. The limiter circuit causes the control unit to become inoperative if the r.p.m. limit is exceeded. If a control unit is replaced, make sure that the proper control unit for the particular engine that is being serviced is installed.

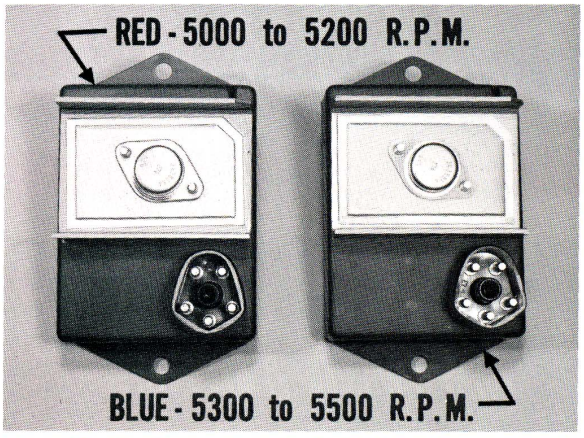

Fig. 31—These control units limit r.p.m. range

SPECIFICATIONS AND APPLICATION

The red one, part number 3656127, limits maxi-

mum r.p.m. range to between five thousand and fifty-two hundred. In current production, the red unit is used on manual transmission models equipped with either a 400 C.I.D. engine with four-barrel carburetor or a 440 C.I.D. Hi-Performance engine. The blue one, part number 3656128, limits maximum engine r.p.m. to the fifty-three to fifty-five hundred range. At present, the blue one is used only on manual transmission models equipped with a 340 C.I.D. engine. The gold, part number 3438850, is used on all other models equipped with electronic ignition.

WARNING!

When working on or near the control unit, be careful of the little round unit located on the front of the control unit in the center of the heat sink. That unit is the switching transistor which is connected to ground and interrupts the current in the primary circuit when it gets the signal from the pick-up unit. Don't touch the switching transistor when the ignition is on; it can give you a pretty good jolt.

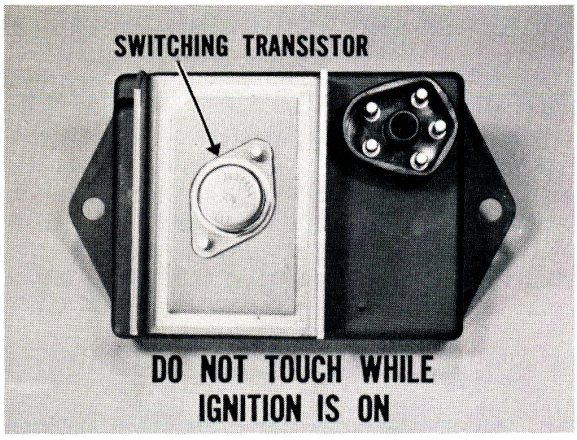

Fig. 32—Transistor gives a jolt with ignition on

New Ignition Cables

When working on a car equipped with the electronic ignition system, you can't help but notice the bright orange ignition cables. These new silicone-rubber covered secondary cables are standard equipment with the electronic ignition system. They are also available as a replacement item from the parts department.

NEW COVERING, NEW TERMINAL CONSTRUCTION

The new ignition cables are equipped with a silicone-rubber outer covering that is highly flexible and is extremely heat resistant. A fiberglass jacket has also been added which increases the strength and durability over the standard neoprene cables. Otherwise, they're essentially the same. At the terminals, the conductor has been wrapped back over the outer covering and the clip installed. This new construction provides a positive connection with sufficient contact for a good strong spark.

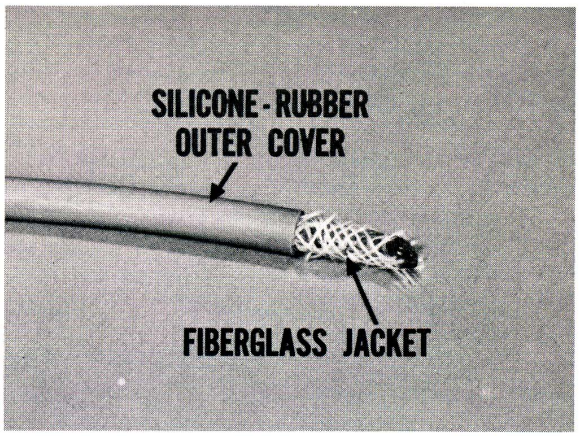

Fig. 33—This cable standard with electronic system

REMOVE CABLES THE RIGHT WAY

The increased strength and improved terminal construction of the new cables does not mean that you can use the *cable* as a handle and pull it from the spark plug or the distributor cap. That's the easiest way in the world to disconnect the cable from the terminal and ruin the cable. Always remove the cable from the plug by firmly grabbing the terminal itself. The cover at the terminal is very flexible so this can be done quite easily.

RADIO FREQUENCY INTERFERENCE

Metallic conductor ignition cables contribute substantially to what is known as "radio frequency interference", commonly referred to as RFI. In simple terms, this means that it can interfere with other forms of communication equipment. The greatest danger from this interference lies in the fact that it can interfere with and even interrupt communication between community service vehicles such as police cars, fire trucks, ambulances and the like.

METALLIC CONDUCTORS ARE OUT

Chrysler Corporation hasn't used ignition cables with metallic conductors for about ten years. In addition, the Corporation has complied with the

Federal Communications Commission and has removed all metallic conductor cables from their parts stock. You technicians can help out by refraining from installing any type of metallic conductor secondary ignition cables on any car.

NO ADVANTAGE TO METALLIC CONDUCTOR CABLES

Contrary to popular belief, use of metallic conductor ignition cables *does not* result in better ignition or a "hotter" spark than the non-metallic conductor cables currently used as standard production equipment. Also, metallic conductor cables *will not* last any longer than non-metallic cables.

Distributor Advance Solenoid

Another new item that will be found on some '72 models is a distributor *advance* solenoid. It advances the spark when cranking only. It will advance the spark at starting approximately seven-and-a-half degrees to improve starting. Once the car is running, the circuit to the solenoid is opened and the solenoid becomes inoperative. The ignition timing returns to normal as soon as the engine starts.

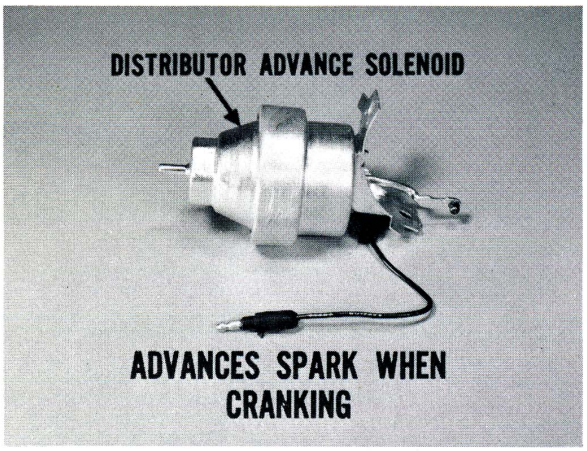

Fig. 34—Solenoid inoperative with car running

TO TEST THE ADVANCE SOLENOID

You'll need full battery power for this test, so get a jumper wire long enough to reach from the battery to the solenoid. You'll also need a tachometer to check engine r.p.m. Connect the tachometer, start the engine, and run at idle. Disconnect the vacuum line at the solenoid. The lead wire cannot be removed at the solenoid, so disconnect it at the connector which is about six inches from the solenoid.

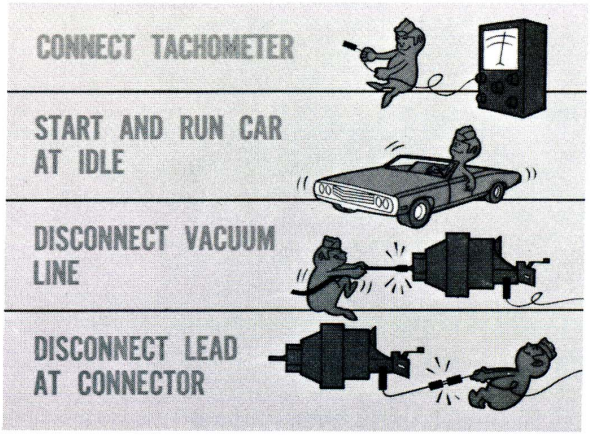

Fig. 35—Vacuum advance solenoid test conditions

R.P.M.'S SHOULD INCREASE

Connect a jumper wire from the solenoid lead to the battery. If the tachometer indicates an increase of approximately twenty-five to fifty r.p.m.'s, the solenoid is good. Since the solenoid is not designed for continuous operation, don't keep the jumper connected for more than thirty seconds or you'll burn out the solenoid.

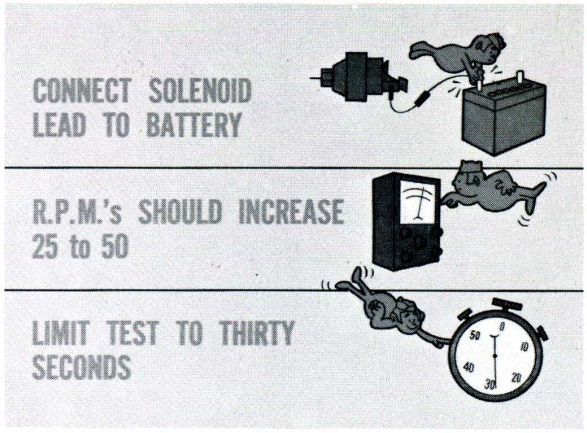

Fig. 36—Vacuum advance solenoid test results

HELP ME OUT, FELLAS

Along with Session Number 72-3 you should have received some "Tell It To Tech" forms. I'm sure that many of you technicians have some great suggestions for improving serviceability on our cars and trucks. You can help me out and at the same time help yourself by sending in any suggestions *you* may have. So, fill out the form and "TELL IT TO TECH".

Master Technician

LITHO IN U.S.A.