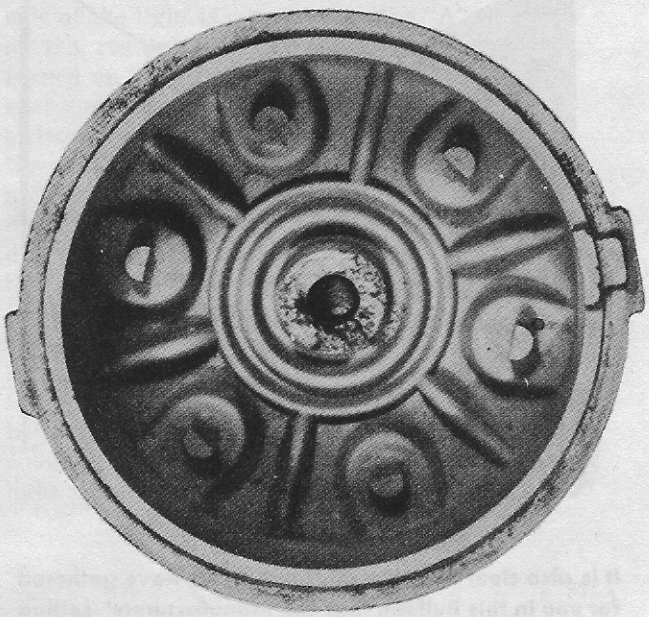
SERVICE BULLETIN No. 79-54

A PECULIAR DISTRIBUTOR HEAD TROUBLE

You may come across a peculiar trouble on distributor heads used on the Chrysler family of cars and others using Auto-Lite ignition. We refer to the heads which we call AL-130 and AL-133 and which have been in use since 1949.



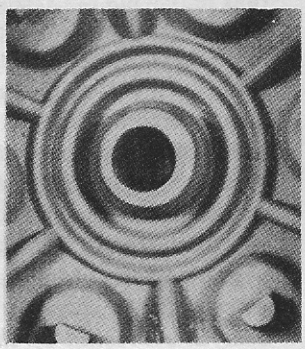
On this unretouched photo view looking into the distributor head shows the badly burnt down bakelite sleeve.

On this type of distributor head you may find that the high tension brush wears out the bakelite sleeve in which it rides, so that the normally round hole becomes elliptical and pear shaped or just enlarged. In some instances you may even find the bakelite around the brush badly burnt, so that the head has to be replaced.

This is due to the fact that in these heads, the contact brush is really a radio suppressor with a value of approximately 10,000 ohms. While the tip of the brush is made of comparatively soft carbon, the body of the brush is made of a very hard, resistance material.

Because the brush acts as a resistor, the regular brass sleeve in which the ordinary brush rides in the AL-96 type of distributor head, cannot be used in this case, as a brass or any other metallic sleeve would short circuit the suppressor resistance in the AL-130 & AL-133 type. Therefore the original equipment engineers have designed the heads without any sleeve, and the brush simply rides in the bakelite hole.

As the rotor, in contact with this brush, rotates, it causes a certain amount of eccentric movement of the hard resistor brush, which wears out the bakelite and causes the hole to become out of round and enlarged. In many cases, when the hole becomes large enough to permit a lot of eccentric brush motion, the brush breaks and the high tension spark jumps between the rotor and the remaining portion of the broken brush. This eventually burns up the bakelite in the distributor head at the brush hole and makes the head inoperative.



In this unretouched photo note the eccentric and enlarged hole caused by the suppresser type brush.

While we can explain to you the cause of this trouble, we cannot, unfortunately, provide a remedy for it at the present time, as the condition is due to the original design of the head.

AND, STILL ANOTHER TROUBLE

Another trouble which sometimes develops in this type of distributor head is corrosion of the firing segments and condensation of moisture on the inner surface of the head. This head was designed without the conventional ventilation holes, as part of a water-proof ignition system, and although a ventilation hole is provided on the bottom of the distributor cup, it either gets stuffed up by dirt or does not provide sufficient ventilation for the inside of the distributor.

When the distributor has been in service for awhile and the distributor shaft is worn sufficiently to permit the entrance of crankcase fumes into the distributor, the absence of ventilation holes in the head may result in corrosion of the firing segments, as mentioned above. We would recommend that when either corrosion of the firing segments or moisture condensation on the inner surface of the head is found, that you drill two ⅛" holes in the side of the head in order to provide the necessary ventilation.

SERVICE BULLETIN No. 80-54

WHEN IT'S ON, IT'S OFF!

On a number of cars manufactured in recent years, the ammeter on the instrument panel has been replaced by a red or yellow signal light. The Hudson has had such an arrangement since 1937, while on cars like Nash and Ford, the light is of more recent origin.

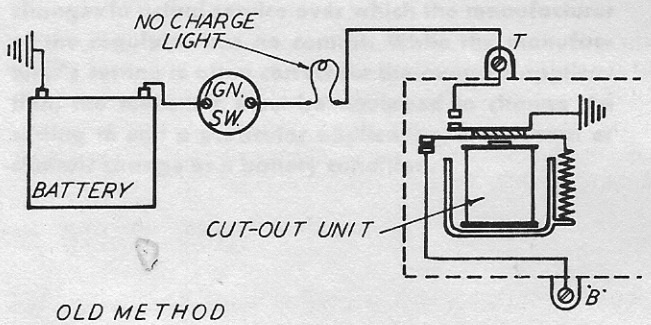
From a number of inquiries and reports we have received, it is evident that the function of this light is not always clearly understood and that, in a number of cases, the misunderstanding led to the unnecessary replacement of generators and voltage regulators. We therefore believe that an explanation of the operation of the lights is in order.

When an ammeter is furnished on the instrument panel, its needle clearly shows whether the battery is receiving a charge from the generator or is being discharged. Actually, the ammeter in post war cars is really a "charge indicator" as it is not calibrated in amperes to show the exact amount of current in the charging system — it simply shows "charge" or "discharge".

In contrast, when a light is used instead of a charge indicator or ammeter, it becomes a "no charge" indicator. This means that when the light flashes on, the battery is discharging and a "no charge" condition exists. As soon as the generator delivers current to the battery, the light goes out and stays out until the generator ceases charging again. In other words, the "no charge" light is really a warning signal — if it lights up when the generator should be charging, you have trouble in the charging system.

We will now explain how this is accomplished. On the older cars that used a three brush generator, like the Hudson 1937 to 1950, the cutout unit on the regulator was equipped with an extra set of contacts, one of which was connected to the "no charge" light by means of a fourth terminal on the regulator, and the other to ground. The other side of the light was connected to battery through the ignition switch.

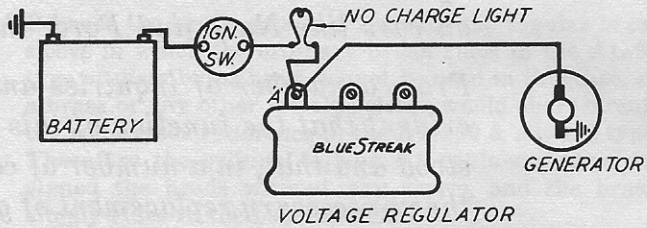
As soon as the ignition switch was turned on and before the engine was started, current flowed from the battery, to the ignition switch, through the "no charge" light, to the regulator cutout through the extra terminal and then through the special cutout contacts to ground, causing the light to go on. When the engine was started and the generator started charging, the cutout winding pulled the cutout armature downward and broke the circuit between the extra contacts, cutting the circuit through the light and causing it to go out. Thereafter, the light would go on every time the generator stopped charging, allowing the cutout armature to snap up and close the extra contacts in the "no charge" light circuit. Our VR-204X and 207X two-unit regulators have this arrangement.



When the third brush generator became obsolete and was replaced by the modern two brush generator, a different method was utilized to operate the "no charge" light, which eliminates the extra set of cutout contacts and the fourth generator terminal. This is the way it is done: *(Continued on other side)*

(Continued) **WHEN IT'S ON, IT'S OFF!**

One side of the "no charge" light is connected to battery through the ignition switch. The other side of the light is connected to the "A" terminal of the regulator. When the ignition switch is turned on and before the engine is started, current flows from the battery through the ignition switch, through the light to the "A" terminal of the regulator and from there through the generator armature to ground. As the generator is not developing any voltage at this time, there is a difference of six volts between the battery and the generator, which sends current through the light and causes it to go on. However, as soon as the generator begins charging and its voltage rises, there is only a small difference of a few tenths of a volt between the generator and the battery and across the "no charge" light, not enough to light a six volt bulb. The "no charge" light therefore remains dark.



NEW METHOD

While this arrangement does show whether or not the generator is charging, it is not as satisfactory as an ammeter, as it does not indicate even approximately the magnitude of the charge going to the battery.

STANDARD MOTOR PRODUCTS, INC.

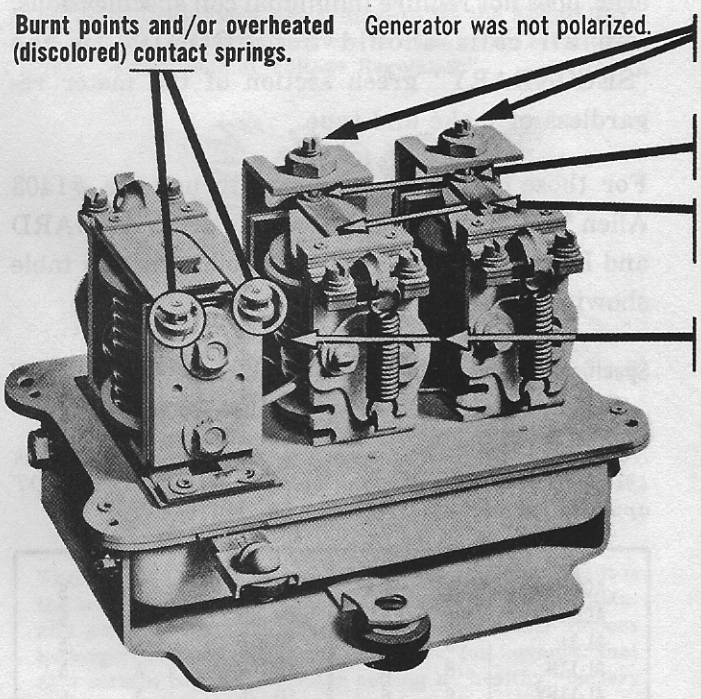
SERVICE BULLETIN No. 81-55

LOOK at the regulator before you condemn or replace it!

In servicing voltage regulators, a thorough analysis of the cause or causes of trouble must be made before the regulator is condemned or replaced. Without this analysis, replacing the regulator will probably not cure the trouble.

In the majority of cases, the cause of the trouble is not in the regulator, but in some condition outside of the regulator, as the regulator is only one unit in the delicately balanced charging system of the car and will operate satisfactorily only if the entire charging system is completely normal. Any unbalance or defect in the system will either bypass the regulator or affect the regulator action, so that it cannot perform its normal function.

The very first step in trouble analysis is a visual examination of the regulator, which may immediately disclose the cause of and indicate a cure for the trouble. Therefore, remove the cover and examine the regulator visually and look for the following symptoms:



INDICATION	CAUSE
CUTOUT	
Burnt points and/or overheated (discolored) contact springs.	Generator was not polarized.
VOLTAGE AND CURRENT UNITS	
Distorted slots in contact screws.	Attempt to change air gaps.—Regulator will not operate with wrong air gaps.
Burnt points.	High resistance or bad ground in charging system.
Overheated (discolored) contact springs.	Crossed connections on regulator.—Shorted generator field coils—shorted wiring.
Burnt windings.	Open circuit (broken connection) or very high resistance in charging system.
Excessive metal build-up or bad pitting or fusing.	Radio condenser connected to "F" terminal of generator or regulator.—Wrong model regulator for particular generator.—Wrong polarity regulator.—High resistance in charging system.
Dirty or oxidized points.	Insufficient maintenance. Regulator points require cleaning like ignition points.
Voltage unit points OK but current unit points burnt.	Trouble in generator or wiring, causing current unit to operate continuously with abnormal current.
Corrosion of parts.	Action of salt, water or acid fumes.

As you can see from the above chart, a visual check up of the regulator will account for 90% of charging circuit troubles which cannot be cured by a mere replacement of the regulator. There are other possible causes of trouble outside of the regulator which we will describe in a subsequent bulletin.

SERVICE BULLETIN No. 82-55

Testing "STANDARD" and "BLUE STREAK" coils on the Allen #1403 Coil Tester

A new Coil and Condenser Tester was recently introduced by the Allen Electric and Equipment Company as their No. 1403 Tester. This tester is well engineered and built and does a good job, but only if properly used, as explained below.

In order to test coils on this tester, it is necessary to have the proper specifications for the various makes and types of coils. For each make and type of coil, two dials on the tester must be set according to the coil manufacturer's specifications, otherwise it is impossible to check a coil correctly.

That is why two Delco-Remy manufactured coils of two different types, for instance, cannot be tested unless the tester is set for each individual type according to the specifications for that type. The same thing applies to Auto-Lite, Ford or any other manufacturer's coils, including ours.

It must also be understood that this tester does *not* provide comparative coil tests; i.e., one make of coil cannot be tested for quality or performance against another make. The tester simply tells you that if a BLUE STREAK coil UC-500R, for instance, is tested with the left-hand "Coil Specification" knob of the tester set at "B" and the right-hand knob at "6", and the needle reads anywhere in the upper right-hand green "EFFICIENCY" section of the meter — then the coil is O.K. Any other knob settings for this particular make and type of coil may show it to not be O.K. As the various knob setting combinations do not indicate the quality of the coil, no attempt should be made to evaluate or compare coil quality on this tester.

Of course, the "SECONDARY" test must also be made, as per Allen instructions. This test, however, does not require individual coil specifications, and all coils should list "GOOD" in the "SECONDARY" green section of the meter regardless of make and type.

For those of you who happen to use the #1403 Allen Tester, we have calibrated our STANDARD and BLUE STREAK coils and following is a table showing the proper settings.

Specifications for Testing "STANDARD" and "BLUE STREAK" Ignition Coils on #1403 Allen Tester.

Note: These specifications apply to all metal can coils with 4¾" long cans, bus coils and bakelite coils. They do NOT apply to our obsolete 5¾" long can.

ACC-560	C	5.5	DR-30	C	5
ACC-560-12	D	5.5	DR-30X	B	5
AL-3J	B	6	FD-375	A	5
AL-11H	B	6	FD-460	A	5
AL-11HX	B	6	FD-475	A	5
DR-1R	C	5	FD-465	A	5
DR-2	D	5.5	FD-470	C	5
DR-25	C	5	FD-470X	B	6
DR-25X	B	6	UC-350	C	5
DR-28	C	5	UC-350 (12V)	D	6
DR-28X	B	6			
DR-29	C	5	UC-500	B	6
DR-29X	B	6	UC-500 (12V)	D	6