

SERVICE BULLETIN No. 68-52

VOLTAGE REGULATOR DAMAGED BY DEFECT IN GENERATOR

We have learned that there is a possible defect in some Delco-Remy 2 Brush Generators used on cars and trucks and manufactured between June 1, 1951 and December 1, 1951.

These generators are 4½" diameter type and can be identified by the serial number that appears on the nameplate. A code is used to specify the year, month and day of manufacture, which works as follows:



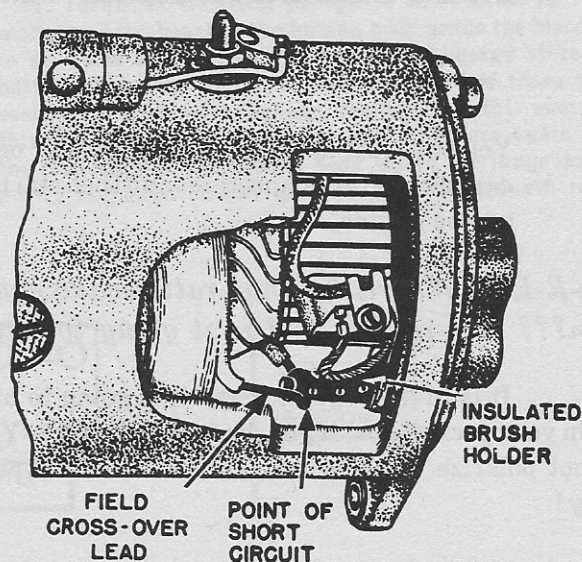
YEAR (1951) MONTH (AUG.) DAY (20)

The first number is the year, the second letter that follows represents the month and the last number is the day. The coding for the month is alphabetical, with "A" for January, "B" for February, and etc., omitting the letter "I" which is not used. Thus: 1 H 20 means that the generator was manufactured in the year 1951, month of August, 20th day.

Therefore, the generators to be watched are those marked from 1 F 1 to 1 M 1.

The possible trouble in these generators is due to the fact that the cross-over lead which connects the two field coils is very close to the insulated brush-holder in the generator and can touch it, causing a short-circuit at that point. As a result of this short circuit, excessive field current will flow through the voltage regulator contact points, and they will burn out. Consequently, the regulator will not charge and the battery will run down.

To remedy this condition and to prevent trouble, whenever you come across a generator, whose serial number is among those given above, i.e., from 1 F 1



to 1 M 1, immediately check the field cross-over lead. If this lead is close to the insulated brush holder, but does not actually touch it, push it back, so as to increase the distance between it and the insulated brush-holder. Care must be taken that the lead does not touch the armature or the frame of the generator.

If you find that the lead actually touches the insulated brush-holder, follow the same procedure and, in addition, check the regulator voltage control and current control contacts, which will usually show signs of burning. In such cases, the contacts must be cleaned, if not badly burned, or replaced if they have burned to a degree that no cleaning is possible.

Many cases of voltage regulator failures, especially in the VR-309, and VR-341 types can be attributed to this generator defect. Replacing the regulator without curing the trouble in the generator will positively not help and will result in the burning out of the new regulator.

SERVICE BULLETIN No. 69-52**RATTLESNAKES AND VOLTAGE REGULATORS**

You have just installed a new regulator on a car, checked all connections and then started up the engine.

R-R-R-R!!! Where did that rattlesnake come from??? Where is it and is it going to bite?

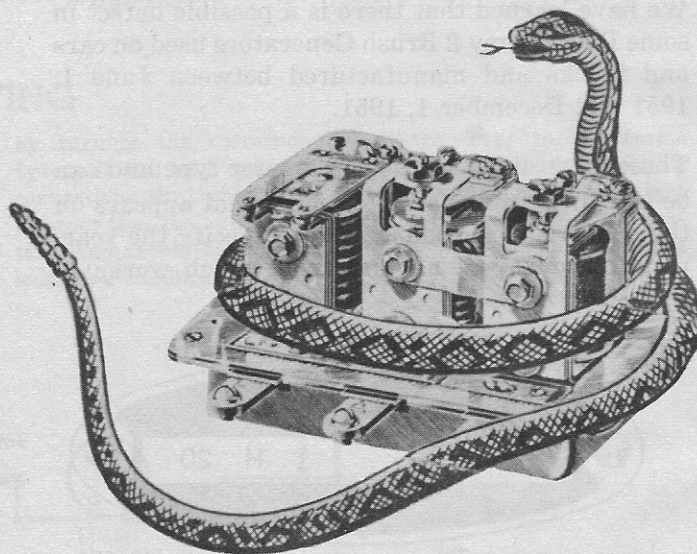
It is in the regulator and it is going to bite you in your pocketbook, if you don't get rid of it!—You did not polarize the generator or did not do so correctly!

The buzzing noise you hear is made by the cut-out points in the regulator, which are doing their darndest to close and start the voltage regulator operating. But, because the generator field is not of the same polarity as the battery, the generator and the battery are bucking each other, and not enough current is sent through the cut-out winding to pull the cut-out points down and to keep them down.

It must be understood that a generator has no fixed polarity. The generator field can be made either positive or negative at will, and the direction of the current produced by the generator will change with the polarity of the field. If the direction of the generator current is the same as that of the battery, the generator and the battery will work in harmony, and all the units connected to them will operate as they should.

However, if the direction of the generator current is opposite from that of the battery current, the generator and the battery will work against each other, and you will hear rattlesnakes.

And these rattlesnakes bite! They will bite through the cut-out points, and all you will have left will be



two chunks of burned silver instead of points, unless you stop the engine immediately and polarize the generator. "Polarize" is a big word but, actually, polarizing a generator is a quick and simple operation, and all you have to do is to follow the directions given in the instruction sheet packed with each regulator.

If you want to *see* what actually happens when you hear the buzz, substitute an old regulator you don't care too much about, with the cover off and watch the lovely, hot spark between the cut-out points. You will immediately be able to figure out how long the points will last under this punishment. **Do not try this stunt on a good regulator.**

If you are ever in doubt as to whether you have polarized the generator properly, remove the fan belt from the generator pulley and then polarize. When you connect the wire between the "A" and "B" terminals of the regulator, watch the generator. You will find that the generator pulley will turn like a motor — you have polarized the generator. Replace the fan belt on to the generator pulley, and you are set to go.

SERVICE BULLETIN No. 70-52

IS IT NECESSARY TO CLEAN NEW BREAKER POINTS?

Yes, even with brand new breaker points, cleaning is necessary, as a safeguard against trouble.

Unless the mechanic's hands are *really* clean during the installation of the points, the probability is that some dirt, oil or grease will get on the tungsten surfaces of the points. If this is permitted to happen, the points may burn, operate erratically or, if sufficient oil or dirt is present on the surface, the engine may not even start.

The cleaning consists simply in wiping the tungsten surfaces of the breaker arm with a clean, lintless cloth or a piece of clean fish paper. This should be done as the last step in the installation. The use of some kind of dirt solvent like carbon tetrachloride is also desirable. Whenever such solvent is used, it is advisable to wait until it evaporates, then wipe off any film that the solvent may leave, using a clean strip of fish paper or any other hard, smooth material that will not leave lint between the points.

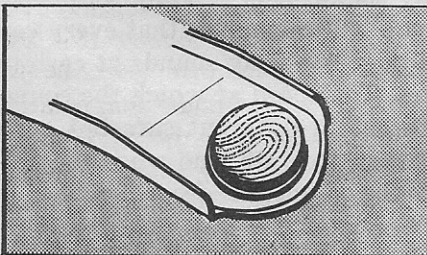
While these instructions may appear fundamental and should be well known to every mechanic, it is surprising how often we hear from mechanics that

new points do not operate properly, only to find when we examine the points, they are covered with oil or grease. Please bear in mind at all times that breaker points do a terrific job of making and breaking an electrical circuit, six thousand times a minute at moderate engine speed, so that in an hour's driving they operate 360,000 times. Any impediment in the form of foreign substances on the points *must* and *will* interfere with their efficient operation.

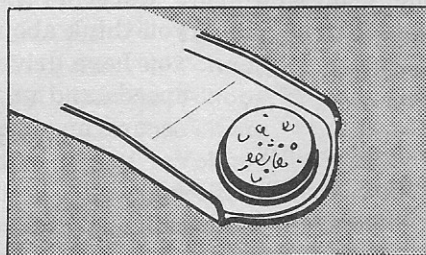
By the way, talking of point cleaning, never use emery cloth, sand paper or any abrasive material that may leave particles of the abrasive on the point surfaces. The particles will become imbedded in the tungsten, resulting in hardening and burning.

This applies also to the cleaning of used points. Any cleaning of points, whether new or old, will cause trouble if any of the cleaning materials mentioned in last paragraph above, are used. The safest way to clean old points is by means of a good, double-cut point file similar to our TF-1.

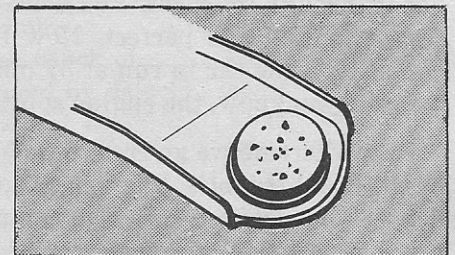
OBSERVE THESE CAUTIONARY HINTS



Carbon Tetrachloride will clean this off. Careless handling which leaves grease, oil or dirt smudges on tungsten, causes erratic point operation.



Use clean fish paper to wipe off film after cleaning with carbon tet, (only lintless material should be used as lint will cause inefficient operation).



Never use emery cloth, sandpaper or any other abrasive material, because particles may become imbedded—and result in hardening and burning.

SERVICE BULLETIN No. 71-52

WHAT IS VIBRATION POINT *and* *What it can do to a Car!*

It is a well known fact that car manufacturers do terrific work in their research laboratories toward improving car performance. They supplement this theoretical research with grueling tests on their proving grounds, where cars are put through every conceivable test, so that any weaknesses in construction or performance may be discovered and corrected. Yet, in spite of these elaborate and searching efforts, occasionally a trouble shows up in actual car service, which somehow manages to escape discovery during the tests and which may be quite baffling to the car owner and to the mechanic.

One such trouble pops up in 1951 and 1952 cars, and it is of such a nature that the car owner finds it difficult to convince the mechanic that the trouble really exists. Just imagine that a customer of yours drives in, in a 1951 high-priced car and tells you that when he attempts to drive his car at 37 miles per hour, his engine cuts out. *Not at 36 miles and not at 38 miles or 78 miles per hour, but only at 37!*

You ask the usual questions: Does the car start easily, is the pick up good, etc. The answers are all in the affirmative—Yes, it's a fine car in every respect—but it dies out at 37 miles per hour and only at 37.

You think there is something fluky about the story, but, after all the guy seems to know what he's talking about, so you get into the car yourself and put it through its paces. You drive slowly, you drive fast—everything is perfect. Now for the real test—you control the car to run at 37 miles per hour, and, what do you know, the engine sputters and dies!

And where do we go from here? It couldn't be any of the usual troubles, like the coils, or points, or condenser, or carburetor, as the car runs fine at lower and higher speed, so where can it be?

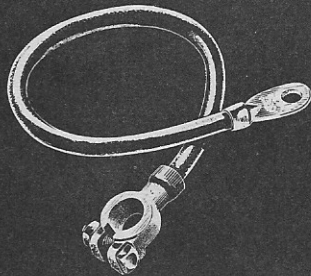
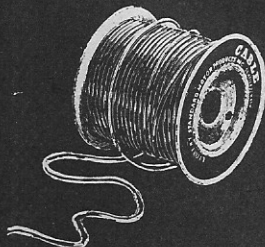
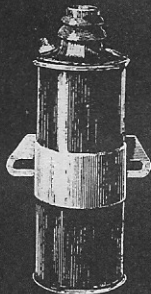
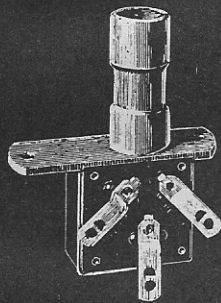
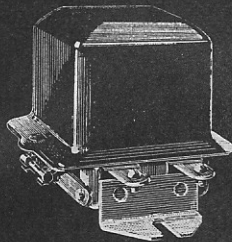
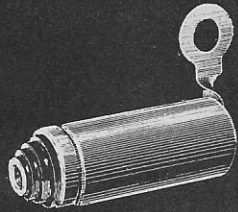
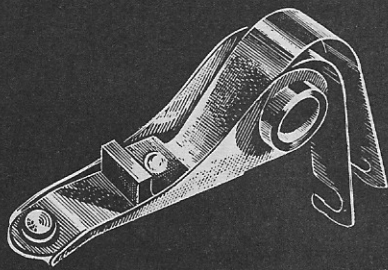
The answer is: **Vibration Point.** In the dictionary "Vibration Point" is defined as follows: "In an internal combustion engine, the speed of rotation at which vibra-

tion takes place". This is what actually happens: In some of the late model cars where the ignition coil is mounted on the engine, the primary wire from the coil to the distributor often lies close to the engine. In service, the insulation of the primary wire may char from the heat of the engine and gradually disintegrate, leaving the wire bare in spots. Normally, the bare wire is not in contact with the engine but at a certain speed, in the above case 37 miles per hour, the "vibration point" occurs, and this vibration causes the bare primary wire to touch the engine which naturally grounds out the coil and kills the engine.

While the figure "37" was used in the described case, another car of the same make, year and model may have its vibration point occur at a different speed. In other words, each individual car has its own vibration point at just one particular speed.

Queer as this may sound, it is actually so, and if you think about it you will remember that every car you have driven will develop body sounds at certain speeds and no others. The speed at which the sound occurs may be different in different cars but each car has its own "vibration point", and when the primary wire is close to the engine, the described trouble will show up sooner or later.

The remedy of course is simple as long as the malady is known. Just replace the primary wire from the ignition coil to the distributor and try to keep it from being too close to the engine.



Blue Streak 'firsts'

It's easy enough for a man to follow in the footsteps of others; to do no more than is asked of him. But the man who finds new solutions to old motor problems is, without question, a leader. Here is evidence that Blue Streak ignition parts are the leaders in their field. Again and again, Blue Streak has been "first" with an ignition product that contributed to longer life and better car performance.

- "first"** Heavy Duty Breaker Arm 1933
- "first"** Hermetically-Sealed Condenser 1934
- "first"** Headlight Relay 1937
- "first"** Completely Sealed Dimmer Switch 1938
- "first"** Triple-Protection Top Coil 1940
- "first"** Vinylite Automotive Cable 1946
- "first"** Ektron Plastic Insulated Cable 1949
- "first"** Specially Designed Marine Ignition Coil 1953
- "first"** Mylar Insulated Ignition Coil Winding 1956

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Motor Service Blue Book

For Automotive Service Shop Operators

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APOLOGY TO "BLUE STREAK"

At a recent convention, your Editor met a representative of Standard Motor Products, Inc., who said, "That's a good electrical article you had in the December issue." And then he added, "But why didn't you give credit to the Blue Streak Service Bulletin."

What he was referring to was our article on page 30 entitled "Bad Generator Brushes Can Keep Starter from Working," and he was also referring to the fact that a "Blue Streak Service Bulletin" had been published on this subject. We will admit that the bulletin gave us the idea for this article, although the material we published was not taken from the bulletin, but was obtained from other sources. We have always felt that the "Blue Streak Bulletins" comprised one of the finest services which a manufacturer could extend to his customers, and we want to say that our opinion about these bulletins has not changed. Therefore, we want to give full credit at this time for the fact that the Bulletin started the idea working and the idea eventually developed as a short article in MOTOR SERVICE. Comparing the two at the present time, we find that the article probably points out the reasons back of the system, while the bulletin may come closer to shop practice and tell the shop mechanic or electrician what to do in order to determine whether the generator brushes are bad or not.