

1935 Generator Manual Resurrected Part III

Courtesy Electrical Rebuilder's Assoc.

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Voltage Regulator

The Delco-Remy vibrating regulator with a heavy duty cutout relay is used with the Model 936-N Generator. This arrangement depends on the current characteristic of the third-brush generator to limit the maximum current (Figure 9).

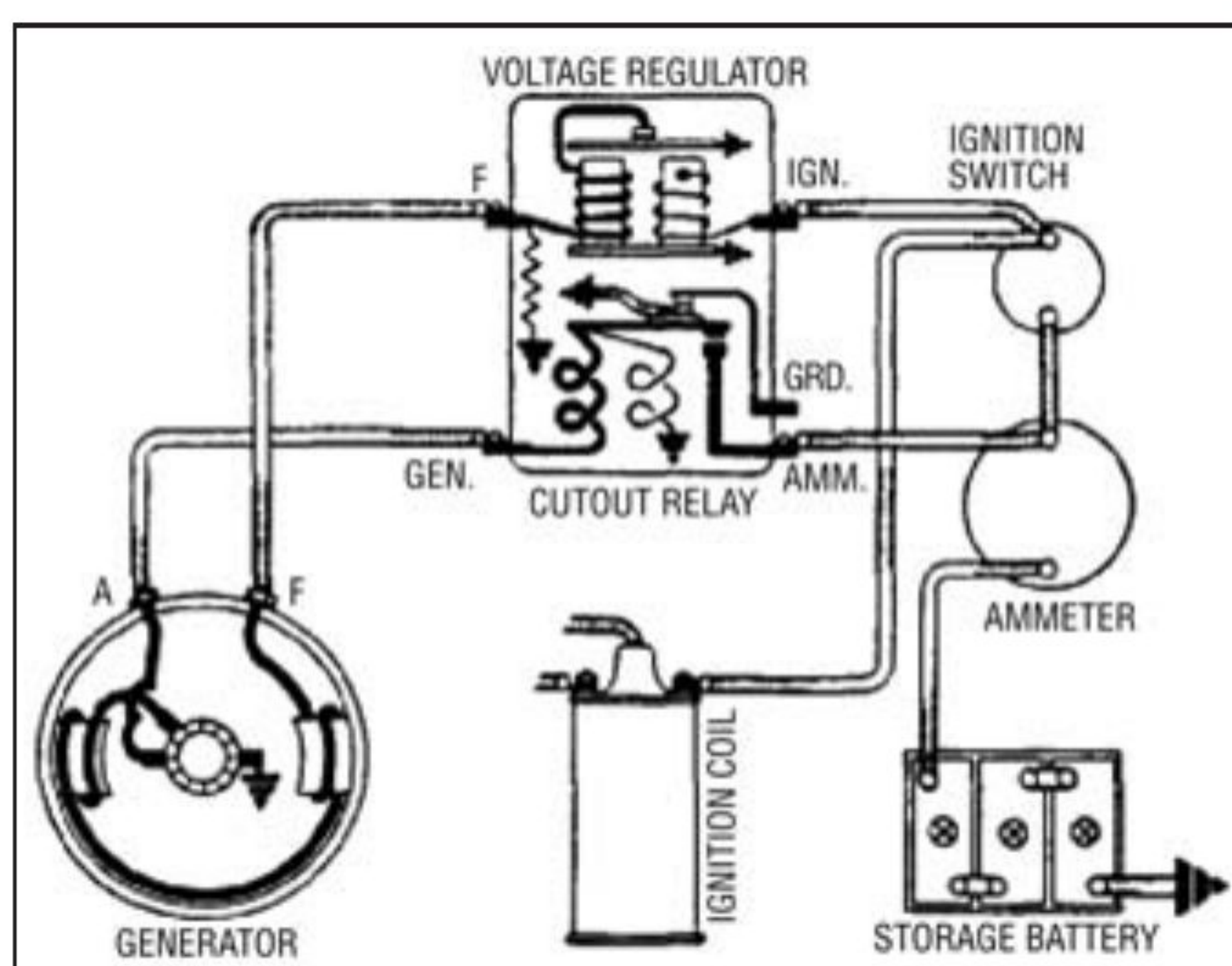


Figure 9—Voltage regulator

The voltage regulator works in the same manner as previously described, limiting the voltage so the charging rate is reduced as the battery comes up. The generator can be set to its maximum safe output and the battery is protected from overcharge by the action of the voltage regulator.

Step-Voltage Control

The Delco-Remy step-voltage control used on the 931-R generator consists of a heavy duty cutout relay and a voltage control unit. The cutout relay has the normal function of disconnecting the battery from the generator (Figure 10).

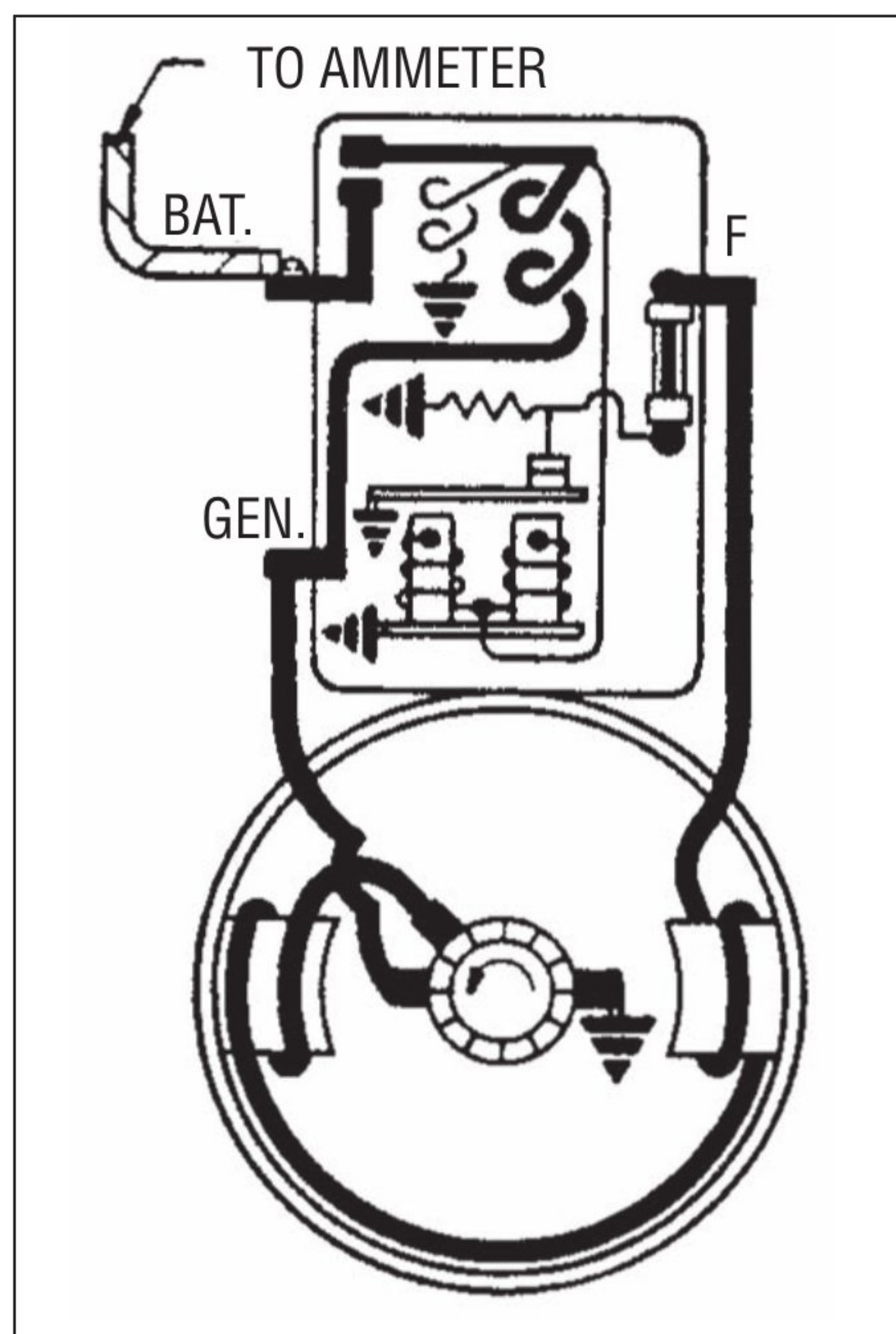


Figure 10—Voltage control-step unit

The following features are incorporated in the step-voltage control unit:

- When the battery becomes fully charged, the voltage control unit inserts a resistance in the generator field circuit and the charging rate is reduced. The generator continues to charge at the lower rate as long as the battery remains fully charged and the connected load is small.
- When sufficient electrical load, such as lamps, heater, radio, etc., are being used to require a higher generator output, the added field resistance is automatically removed and the generator then operates as shown by the higher curves of Figure 11, carrying the total load without drawing current from the battery.

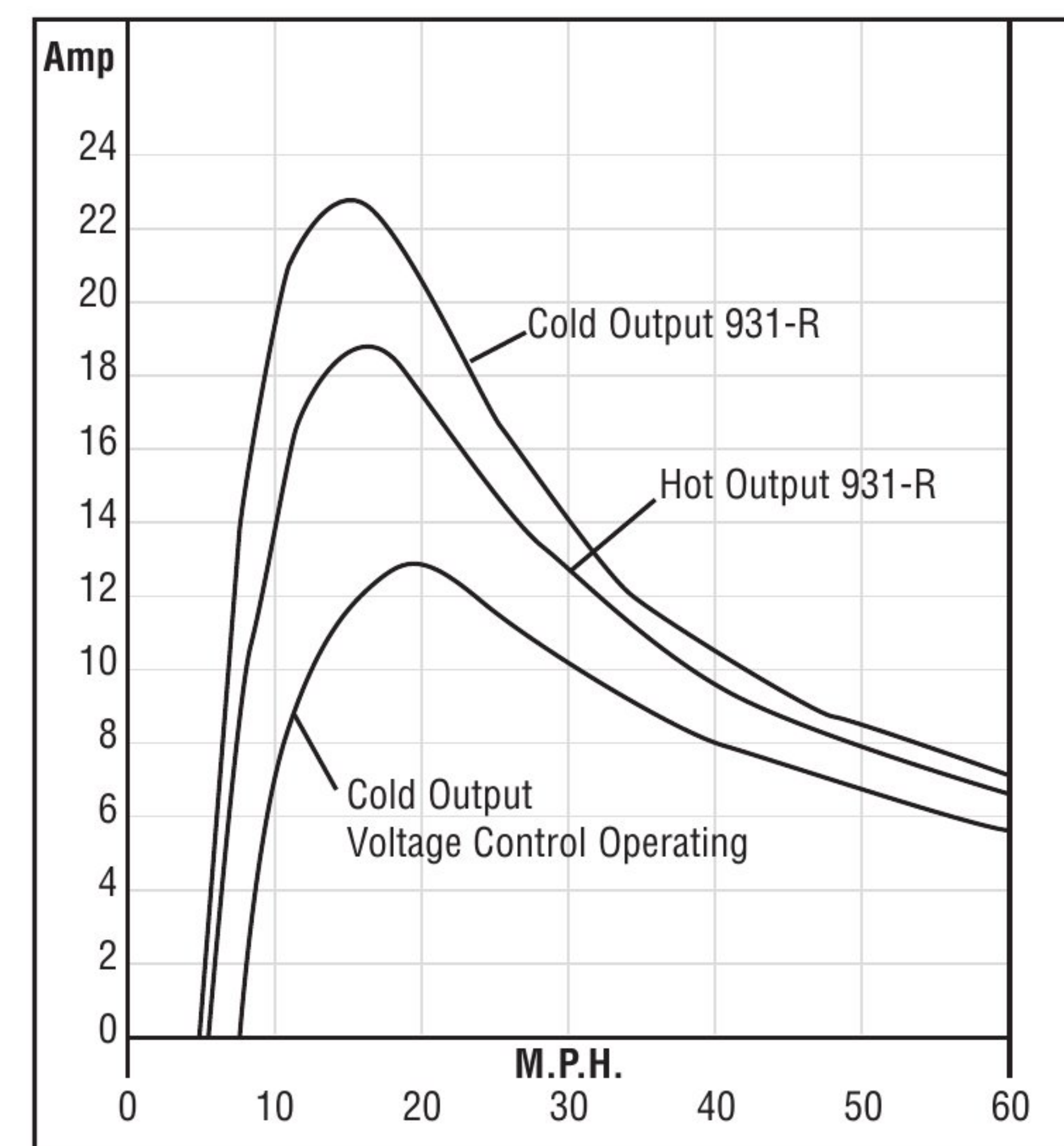


Figure 11—Performance Curves—Model 931-R Generator for City Service

- If the battery should become partially discharged, due to some unusual condition such as parking with the lamps turned on or excessive use of the starting motor in cold weather, the generator will produce its full output to bring the battery up rapidly.
- The generator operates as though it had available two different settings of the third brush and the brush was shifted from one position to the other automatically depending on the amount of the electrical load and the condition of the battery. This, of course, is not the exact way in which the regulator functions but will serve to explain its effect.

Generator and Regulator Installation

Some of the generators mentioned here are larger in diameter than the standard equipment generator and are approximately two inches longer. Dimensions of these units and table of parts used in making each installation are included in Application Bulletin 1 G-112A.

However, all parts needed for the installation of the generator are included in each installation package. Figure 12 shows a model 933-L generator (Class A) installed on a Chevrolet utility truck. Class B generator installations are similar in appearance to Class A. Figure 13 shows a model, 931-R (Class C) generator on a Chevrolet commercial truck.

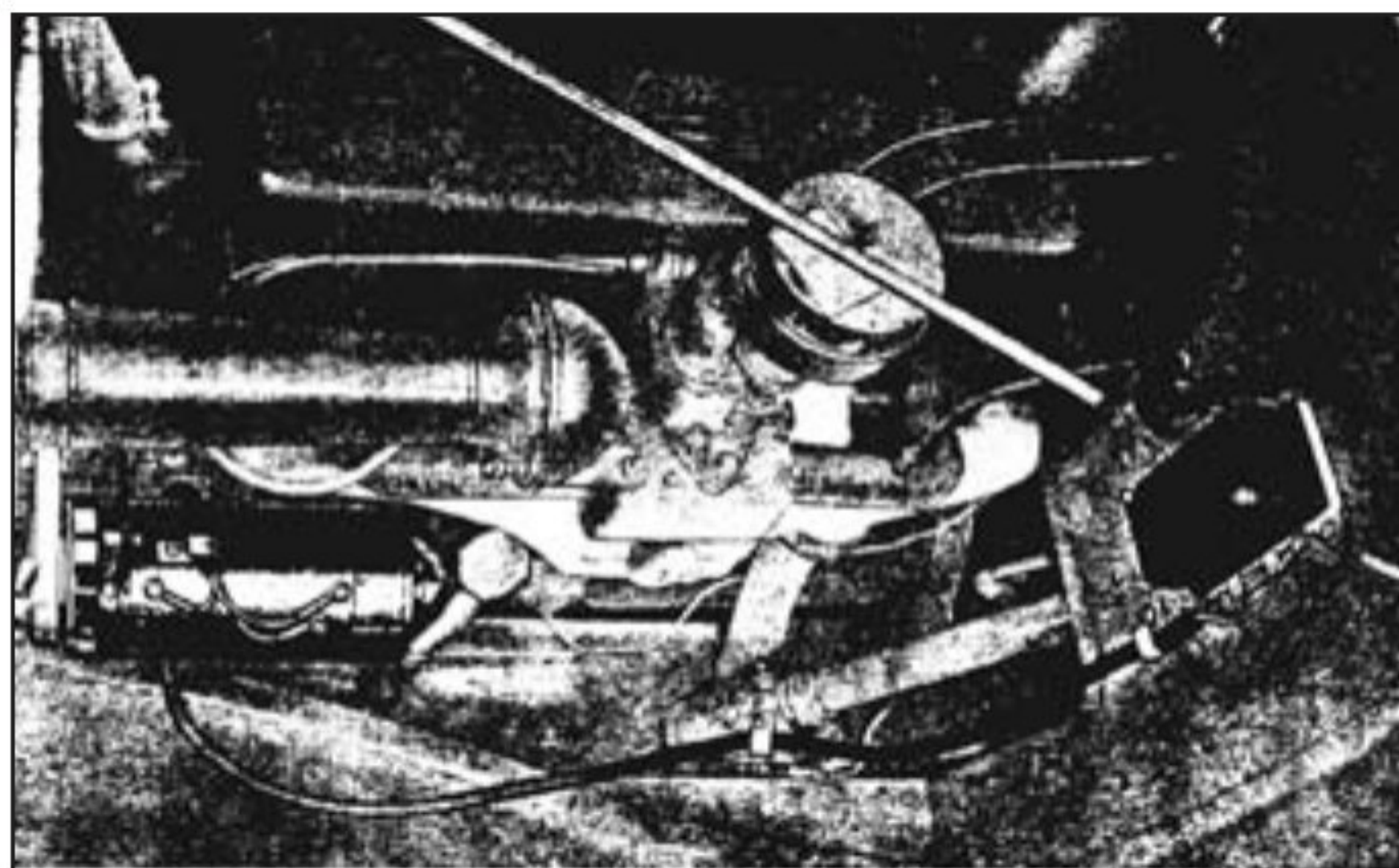


Figure 12—Class A generator and regulator installed on Chevrolet truck. Class B generator and regulator is similar in mounting and appearance to Class A



Figure 13—Installation of Class C generator with Step-voltage control mounted on generator

Choosing the Proper Unit

In selecting the generator to suit your particular need, recall the general classification of service made earlier in this discussion, that is, for commercial work—city service, mixed service or cross-country service; or city or state police work. Into one or another of these groups will fall practically all commercial and police vehicles.

For those operating entirely or nearly so, within the confine of cities and towns, the Class B and C generators are recommended since they are thoroughly adequate for this service and may be installed in a short time with a minimum of trouble. If the vehicle is in delivery service but spends a fair amount of its operating time in suburban districts, the Class A generator should be used in preference to the Class B or C, due to its higher output at speeds above 25 miles per hour. If the vehicle is operating in intercity or rural service, the Class A shunt-wound generator should always be used. Its high capacity and excellent speed characteristics make the unit ideal for this class of service.

The shunt-wound Class A generator is the recommended type for police cars. It is available with two different application packages. For city police work, with a small pulley so that ample power is delivered to the battery at cruising speeds and, for state police work, with a larger pulley so the generator is not driven unnecessarily fast when the car is on the highway.

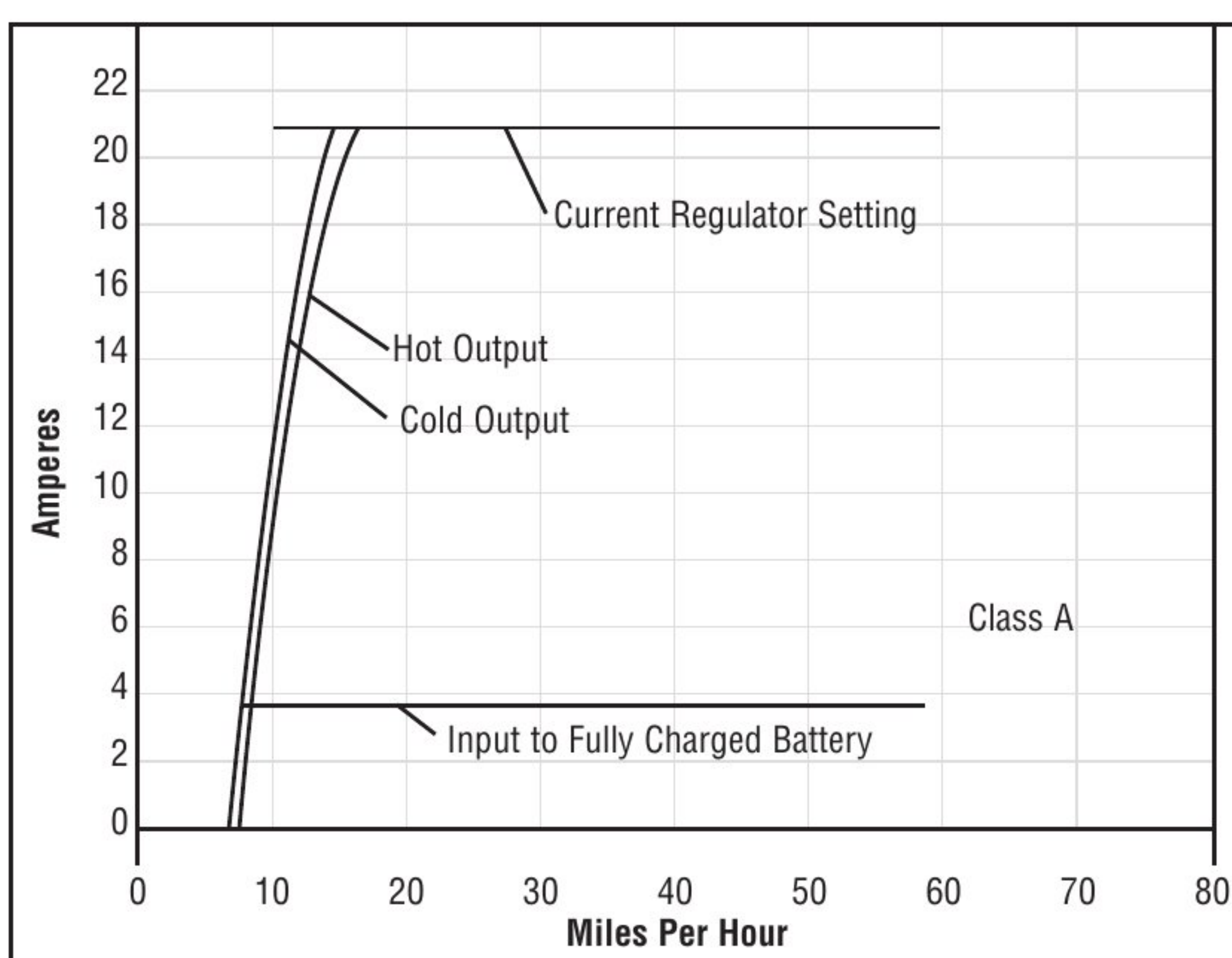
The following listing of heavy-duty generators is divided into three classifications.

Class A, shunt-wound ventilated machines with current and voltage regulators.

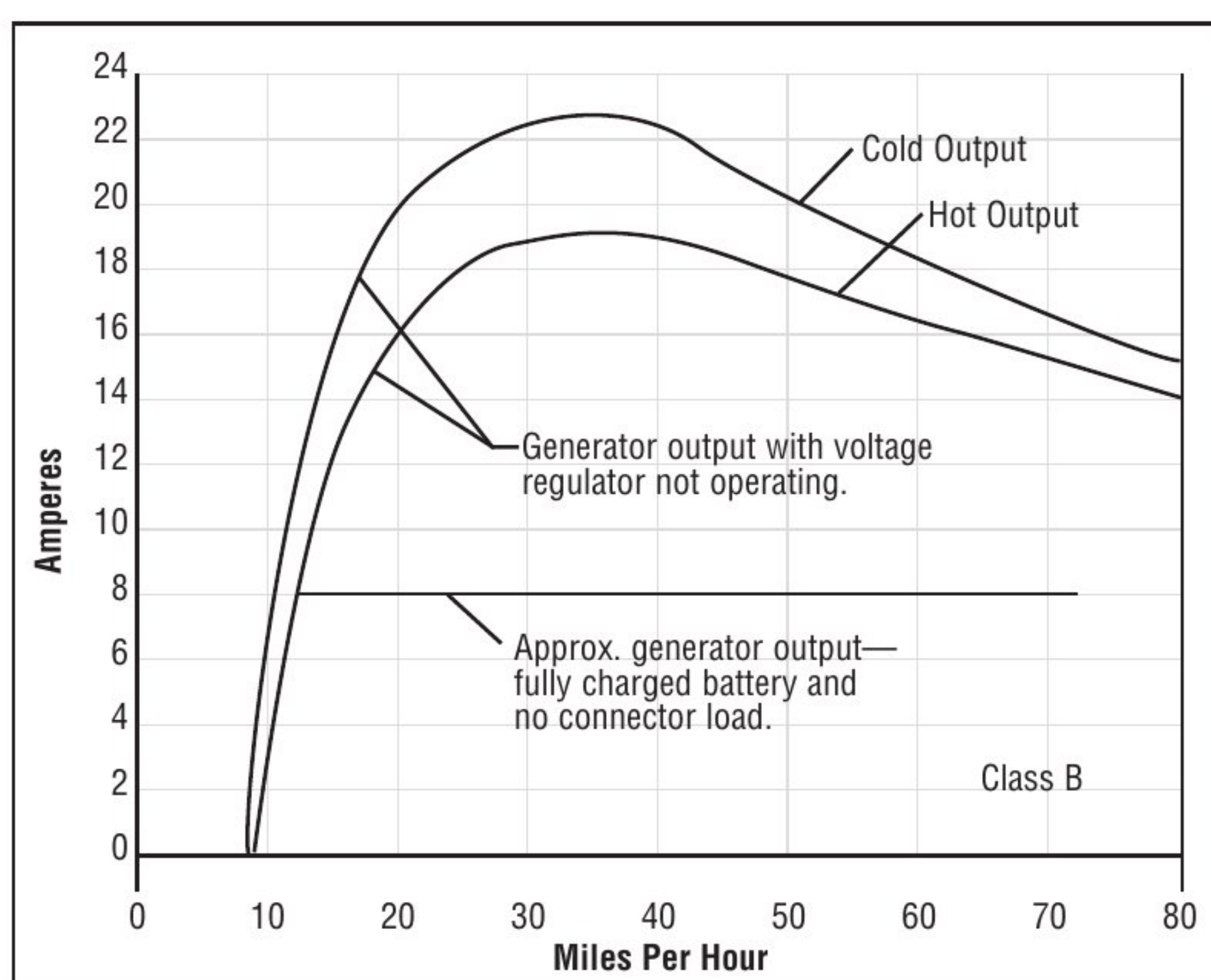
Class B, ventilated third-brush machines with vibrating voltage regulator.

Class C, ventilated third-brush machines with step voltage control.

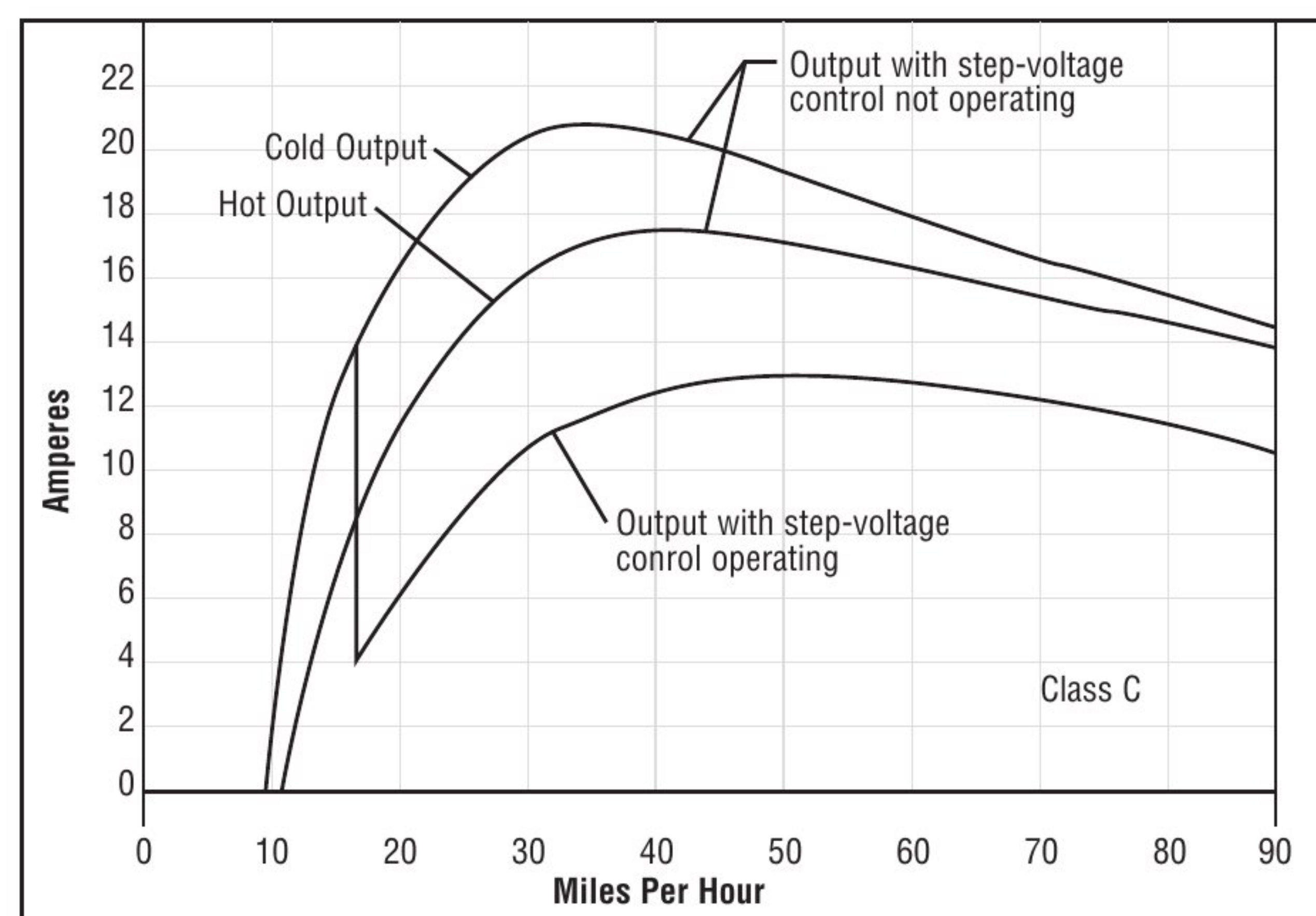
The three characteristic curves show the relative charging rate of the three types in relation to speed. It is apparent that Class A type will give greater output at high speed than any of the other types and should be used where the maximum output with variable or high speed is needed. The Class B and C generators have the same general characteristics as the straight third-brush generator except they have a much higher output capacity and, by means of voltage regulation or control, the battery is protected from excessive overcharge. With the step voltage control of Class C, the generator in effect becomes a two-range machine, the output of which depends on the state of charge of the battery.



Class A Generator



Class B Generator



Class C Generator