Limitations of The Carburator

Trouble is being experienced in the carburation of a vast number of cars and has been so experienced quite acutely for a number of years past. Naturally, most of the complaints of carburation trouble are made during cold weather and a large part of them come from users of cars built more than three or four years ago. These "tales of woe" frequently speak of the failure of certain cylinders to fire regularly, of the sooting of their plugs, of their early carbonization, of lack of engine power, poor acceleration and the stalling or choking of the engine upon a sudden opening of the throttle. It is significant that such correspondents often state that they have changed carburetors once or more, but without eliminating the trouble and a few words as to this may not be amiss. There are many makes of carburetors. All are good and some may be better than others, but it is doubtful whether there is any carburetor to be had which is capable, unaided, of giving perfect results in connection with an old engine having a long, exposed intake-manifold of doubtful design, and burning ordinary commercial gasoline. All modern carburetors are good metering devices and improvements have been made in the more thorough atomization of the fuel, particularly at low gas demand but, under adverse conditions especially, all such carburetors require assistance in performing the vaporizing function. When a motorist experiences carburation difficulties nothing is more natural than that he should lay these troubles to the carburetor, which is commonly supposed to be solely responsible for carburation, and that he should install a different one. This reasoning frequently proves incorrect for the simple reason that the carburetor is not the only agency concerned in the function which gives it its name, the length and design of the intake piping, the provisions for supplying heat to the same and the jacket temperature of the engine all being important factors as affecting the vaporizing function. It may be suggested that the motorist should consider the carburetor and the entire intake system as a single unit, responsible for carburation results and should act accordingly, not making too many ventures in new carburetors until he is sure that the intake system is supplied with sufficient heat to permit the vaporization of the fuel and air measured into it by the old carburetor. Exhaust heated manifolds are obtainable for many models and for others, a heating jacket can usually be made by a competent sheet metal worker to surround a part of the intake piping.

When sufficiently volatile or "high test" gasoline is used for motor fuel, the ordinary spraying carburetor acts not only to admit to the intake system correctly measured amounts of air and fuel to meet varying mixture demands, but it also acts as a mixing device that is, the fuel sprayed is quite thoroughly taken up by the air in the vaporizing chamber of the carburetor forming, at ordinary temperatures, a quite homogenous and fairly permanent combustible mixture. With old time, straight run 74 degrees gasoline, the carburetor was able to perform this double function with substantial completeness and comparatively little carburation a trouble was experienced. When, however, "low test fuel" containing a large proportion of quite involatile hydrocarbons, is used, the conventional spraying carburetor, while it performs sucessfully enough its function of proportioning the amounts of fuel and air supplied to the intake systems, fails quite markedly in its mixing function. The fuel and air do not form, at the carburetor, a permanent and homogeneous combustible mixture, for the heavy gasoline constituents, although well atomized at the carburetor jet and persisting as a coarse mist for a time, too often return to liquid form in the intake piping and it is only toward the end of the compression stroke that anything like a vaporous mixture of uniform quality is produced. Even then, the conditions are often unfavorable to complete combustion. In order actually to vaporize gasoline, a large amount of heat is required, exactly as heat is required to boil water and this is especially true with low test fuels. What little heat can be supplied by jacketing the carburetor throat or by supplying warmed air is inadequate. Heat must be supplied after the mixture leaves the carburetor in order to secure even approximately perfect vaporization and uniform quality. This is the reason for the recent adoption of exhaust and water-jacked manifolds and those of the hot spot type and these practices are a recognition of the fact that the spraying carburetor is essentially a fuel-and-air measuring device, with very slight vaporizing ability, and that vaporization must be very largely effected by heat furnished the mixture from the surfaces past which it passes after leaving the carburetor. It is the relatively involatile character of commercial gasoline which gives the above facts their present importance.

How To Make a Car Thiefproof

Thief-prooting the car can be done in a variety of ways. The best method is to use some efficient form of automobile lock, but for those to whom the idea of using a lock does not appeal there are other means of preventing the unauthorized operation of the car. The ideal way to protect your car is to lock it and, in addition, to make use of one of the following hints:

If the owner, when he leaves the car, can do some simple thing to it to render its operation difficult or impossible, the chance of a thief taking the trouble, assuming that he has the ability, to make away with the car is about as small as if it were securely locked.

Whatever is done to put the car out of commission temporarily should be something that is hard for the thief to discover, but is easy for the owner to do. Also it should not cost much.

Many of the devices employed affect the ignition and one of the cleverest of these consists of the use of a two-candlepower electric bulb set in a lamp socket in the instrument board and connected to the primary ignition circuit in such a way that when the bulb is removed the current is shut off. When the owner leaves the car he drops the bulb into his pocket, secure in the feeling that no thief will ever solve the secret.

This idea has a variety of modifications. A fuse might be used instead of a lamp bulb, or a hidden switch may be employed. The latter may be located under the front seat cushion, under the cowl, or on the back of the instrument board.

As the ignition current is usually shut off by grounding the primary circuit, an effective method is to ground the primary wire at some unexpected point, easy to reach, but hard to see.

Removing some vital part of the ignition apparatus is excellent, but it involves the trouble of raising the hood. On all battery ignition systems and some magnetos the distributor brush may be lifted out without the slightest difficulty and in about as short a time as it would take to lock the car. On some magnetos the distributer brush may be lifted out without the slightest ring to the distributer brush at the front may be removed in about half a second. Short-circuiting the safety spark gap is very effective, provided the gap is not in plain sight. A small ball of fine wire or tin foil can be used to good advantage between the points of the gap. Current to the plugs is entirely cut off.

If the cables leading to the spark plugs are of about the same length they can be exchanged on each pair of the plugs so that no spark occurs at the right time.

If the carburetor has a spring-controlled air valve it is possible to drill a tiny hole through the valve guide and the valve stem, so that when an inconspicuous pin is placed through it the valve is held open or closed, as desired, so that the engine does not receive the proper mixture.

A three-way valve in the gasolene line operated preferably by an inconspicuous rod, which extends out to the side of the car, will fool most thieves. With it, the gasolene line can be shut off and the carburetor drained in one operation

There are two or three interesting uses of locks which it seems right to include in this story. If the crank handle is carried locked in the tool box, then a fairly safe method of protecting the car is to padlock the starter pedal so that it cannot be depressed. The thief is thus without ordinary means for starting the car and cannot crank it unless it is on a hill or unlessh he can tow it away.

A padlocked damper on the intake or exhaust pipe can be used effectively. The best place for it is on the intake pipe, but a more unexpected place is on the exhaust pipe. The disadvantage with the use of such a damper is that if the device is home-made the hood must be raised.

An excellent means of protecting the car is to put a switch in the main circuit leading from the battery to both the starting motor and the ignition system. The switch should be carefully housed in a steel case which can be locked, but the lock should be easy to reach. This is a device that has not been used to a great extent.

CHEVROLET MODELS.

The Chevrolet line for this year includes the Chevrolet "Four-Ninety" touring, roadster, sedan, and coupe; the "F-A" touring, and the new series "F-B" touring, roadster, and sedan, as well as a one-ton truck.

1919 RPODUCTION.

With the factories going back to production again it will not be many months before a limited number of cars will be available, but it is to be expected that the present shortage of cars will prevail for some months to come.

Prices are controlled by the two factors of labor and material; both are in great demand; there has been no decline in costs, and, consequently, no decline of moment in the prices of worthy cars, nor will there be for months to come.

Belgium, France, Rumania, Serbia, northern Italy, and many other devastated countries must be rebuilt. Steel and materials for reconstruction will be needed in vast quantities; labor will be at a premium. There can be no unexpected change in conditions while the fundamental need is there.

I feel that the man is indeed farsighted who provides himself with his favorite car as soon as he can obtain delivery.—F.E. Bradfield, Velie Motors Corporation.