

TECH TIPS . . . Continued

Until a few years ago, there were three ways of setting your carburetors. First of all you guessed the mixture, secondly you tried plug-reading (which is difficult at best unless you are a real expert on the engine concerned) and third, you utilized the services of a shop with an electronic engine analyzer. These electronic tuning devices have mixture analyzers which quickly give a readout of the mixture delivered by the carburetor by analyzing the exhaust.

Looking at these three methods in a little more detail, we find that the first method is haphazard at best, and the chances of the mixture coming out right are fairly remote. In the second situation, reading, reading a plug, we have a similar situation to the first. Plug reading is often overrated as a means of determining mixture strength. There are a number of factors which affect the coloration of the plug other than the mixture present. One engine will show a different plug color than another for a given mixture strength. This means that plug reading is by no means an absolute standard; far from it. Those people who are engaged in engine development as a means of livelihood look on plug reading as a dubious method at best, and downright unreliable at worst.

Analyzing the mixture strength by electronic devices gets the job done in a very satisfactory manner, but such devices range from expensive to very expensive.

It's a well-known fact that Europeans have been far more fuel conscious than Americans — at least until recently. Some years ago the need was seen for a mixture analyzer that would cost the private motorist little and yet would give him accurate results in analyzing his carburetor and mixture strength. To satisfy this need, a device known as a Colortune plug was introduced on the market in England and very quickly became an accepted method of determining mixture strength.

The function of the Colortune plug is very simple, and relies on one basic fact, this being that different mixture strengths burn at different colors. As far as the Colortune plug is concerned there are three distinct ranges which it can determine, these being a rich mixture, a chemically correct mixture and a lean mixture.

A rich mixture burns with a yellow or yellow/orange color. A chemically correct mixture burns with a blue flame, and a lean mixture burns with a very light-colored flame, almost white. These colors are all but invariable, and this means that it makes little difference what vehicle you have or what conditions prevail, these colors always apply. The accuracy of a Colortune cannot be in doubt as its entire function relies on such a basic principle.

To use the Colortune the spark plug is removed from a cylinder and the Colortune is screwed into its place. A special lead is coupled up to the spark plug lead and the engine fired up. The main body of the Colortune plug is transparent. This allows you to view the combustion color through the transparent section. In other words, you are actually seeing into the cylinder while the engine is running. At this point, you can adjust your idle mixture screw until the desired flame color is achieved.

Actually, there are five mixture stages that you can determine accurately with the Colortune 500. The first is when the mixture is very rich. Second, it will show the transition between the point between a rich mixture and a chemically correct one. As the mixture is leaned out further, it will show when the chemically correct mixture is reached. Next it will show the transition between a chemically correct mixture and a lean one, lastly, a lean mixture.

Setting the carburetor to give the correct idle mixture takes only as long as it takes to screw the idle mixture screw in or out to achieve the desired color. In fact, the longest part of setting the mixture is removing the spark plug in the first place to replace it with a Colortune. Once the mixture is set the

original spark plus is reinstalled in the engine, and the job is finished.

Although the idle mixture is one of the simplest things to use the Colortune plug for, it has numerous other uses, inasmuch as it can be used to check cylinder to cylinder distribution; it can be used to check and set the idle mixture on dual carburetor setups when your engine has one barrel per cylinder. No doubt many of you have struggled for thirty minutes trying to dial in the idle systems on all four cylinders so that the engine runs smoothly. Many people give up before they ever get there. However, with the Colortune plug four-corner idling can be set up so that the engine runs like a watch, even if it does have a 310 cam in it. By blipping the throttle, the accelerator-pump circuit can be verified for correct mixture calibration. When the throttle is blipped the Colortune should show the mixture changing from a slightly rich mixture to a rich mixture if the accelerator pump is working correctly.

The Colortune can also be used for checking the transition circuit. This is done by opening the throttle gradually in neutral until the engine climbs to about 4000 rpm. The mixture should show signs of running somewhere between the chemically correct mixture and a slightly lean one. If it shows a white burn, then you know the transition circuit is on the lean side. Very often such a situation can lead to a misfire at light throttle openings on the highway. By getting the transition circuit correct, this misfire can be eradicated. It is not commonly realized that the transition circuit is one of the most important circuits for town driving, and if an even application of power with the good fuel mileage is to be



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