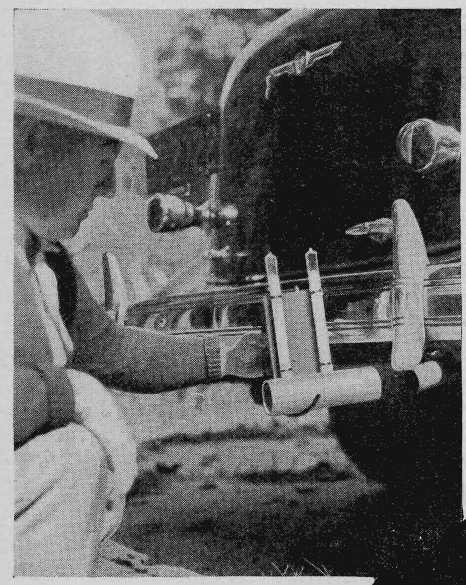
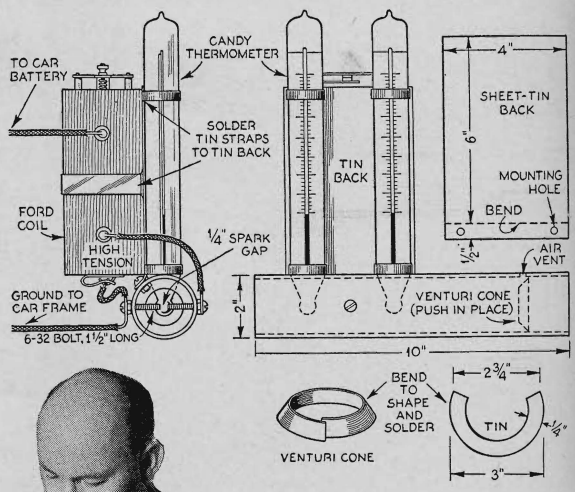
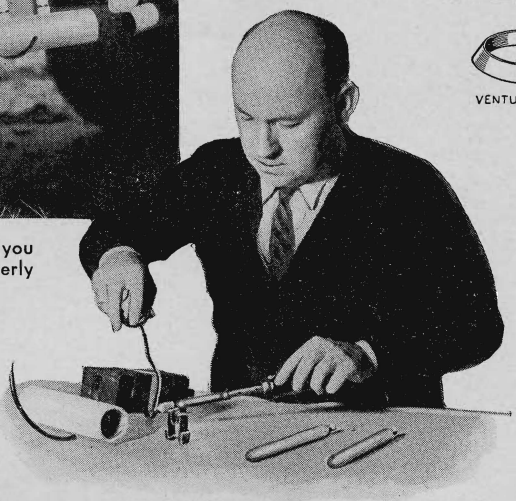
Car-Exhaust Analyzer for Motorists



This exhaust analyzer helps you adjust your carburetor properly



How the analyzer is assembled. Solder should be used to fasten the tin straps holding the coil and thermometers



MOTORISTS who aim for good gasoline mileage are careful to adjust their carburetors, but perfect adjustment is next to impossible unless you can analyze the exhaust gases coming from your engine. For a dollar or less you can make a simple but accurate analyzer that will let you put your carburetor into whack whenever you feel that adjustments are needed.

The device makes use of the carbon monoxide gas always present in the exhaust gases of a car. Carbon monoxide burns—if it gets enough air or oxygen. The analyzer described here supplies the oxygen, ignites the monoxide with an electric spark, and compares the temperature of the burned gas with that of the unburned gas from your exhaust. Since an efficient motor gives a minimum of carbon monoxide in the exhaust, the best carburetor adjustment is obtained when the temperatures of the burned and unburned gases are nearly equal.

Parts for the simple analyzer include a piece of sheet tin, a spark coil from a Model T Ford (an automobile junk yard can supply this), a 10″ length of cardboard mailing tube, two thermometers of the type used in cooking candy, which you can get at a five-and-ten-cent store, a few nuts and bolts, and wire.

The diagram above will assist you in building the device. First cut out the sheet-tin back and the venturi cone. The mailing tube, 2″ in diameter, should be drilled to admit the ends of the thermometers, and to take the two 1½″-long, 6-32 bolts which form the spark gap. Insert the venturi in the mailing tube just ahead of the air vent to draw in the air. It is advisable to solder tin straps to the tin back to hold the spark coil and the thermometers.

Before using the analyzer, warm the engine thoroughly. Clamp the venturi end of the tube firmly over the exhaust pipe. Adjust the carburetor to make the mixture lean, until the engine runs unevenly. Now turn it back slowly until the engine runs smoothly and turn on the analyzer by connecting the wire to the car's battery. After ninety seconds, the rear thermometer will probably give a higher reading than the forward one. This shows that considerable carbon monoxide is present. Repeat the operations, always waiting ninety seconds before making new readings and turning off the spark between tests. When you have obtained the highest possible equal readings on the thermometers—about 130 degrees Fahrenheit—your carburetor will be in perfect adjustment.—A.K.