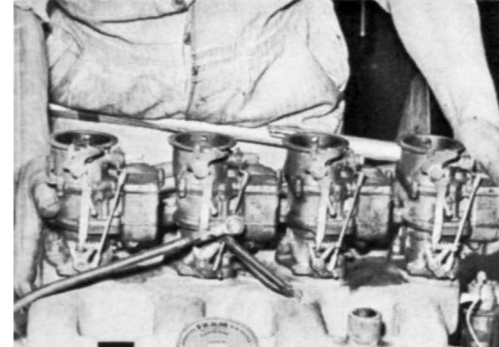


Two cars are proving gasoline injection in competition. Here is how one of them was set up in just 3 hours.

By ROBERT LEE BEHME



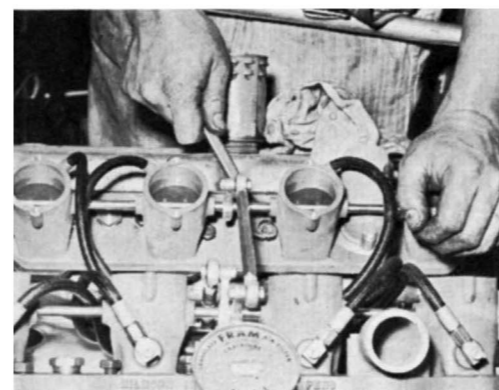
1 Chrysler set up for racing delivered 385 hp, but lacked instant acceleration. Carburetors, fuel lines and wires are dismantled.



2 Stock valley cover can be sent to kit maker, or a new plate with junction block can be had. Junction block must be installed at factory.



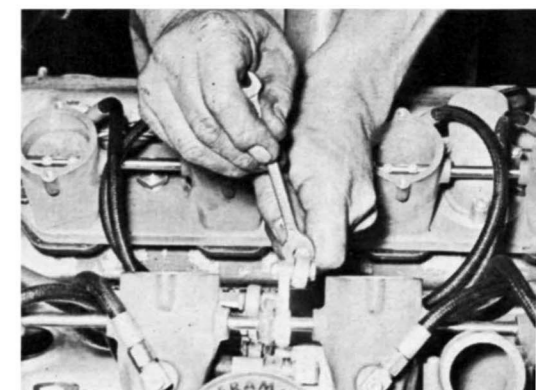
3 A new thin gasket is installed to replace gaskets which were removed. Thicker stock gaskets may cause throttles to stick when opened.



4 After valley cover and injector bodies are positioned, bolts are tightened, and torqued to proper specifications at room temperature.



5 Idle mixture and speeds are set at factory, require little adjustment. Idle is adjustable by turning locknut on throttle screw.



6 Linkage between valve & throttle shaft is turnbuckle. To lean mixture, lengthen link; to enrich fuel, shorten. One turn is enough.

THE dreamy eyes of the out-to-win sports car owner are to the future. He sees, in days ahead, more power, greater fuel economy and a prompt, snappier acceleration when he wants it. He sees all this in the fuel injection systems which Detroit engineers have yet to deliver.

The sports car owner, especially ones running American equipment, sit out the waiting period with unconcealed impatience. But there are some who refuse to wait: "Injection is here," they say, "why wait?"

Why indeed? One company alone, the Hilborn-owned Fuel Injection Engineering Company of Santa Monica, has more than 400 injection equipped cars running today. The Hilborn system has been installed on such varied engines as Chrysler, Dodge, De Soto, flathead Fords, OHV Fords, Mercury and Lincolns, Cadillacs, Oldsmobile, Buick, OHV and plain Chevrolets, Studebaker V-8 and Wayne or Horning equipped GMC engines. The average cost is \$275, complete, ready for installation. They aren't alone, either. There are at least two other companies now in limited production.

The fuel injection system is still a rarity at racing events, but numbers are increasing as drivers begin to take advantage of the increased power and smoother fuel flow of the systems; the latest Jack-the-Bear equipment has injection.

One such owner-driver is John Barneson, who, with engineer George Naruo and designer Jack Hagemann, decided to throw out the four Stromberg 97's which decorated the top of their 385 hp Chrysler powered special in favor of the more efficient Hilborn system.

By strictest definition, the Hilborn system, and systems with similar design, are not "pure" injection methods, but simplified injector-carburetors bolted directly to the intake ports. Fuel is sprayed into the air stream of each injector riser under a comparatively low pressure (less than 23 pounds). The mixture of fuel and air still depend upon the action of the intake valve.

According to injection engineers the "pure" system is more direct: nozzles are located in the combustion chamber. Fuel is sprayed under pressure directly to the chamber. "But whether the Hilborn system is pure or not," Naruo says, "the increase in power and operation which it triggers is unmistakable."

The equipment was ordered from Hilborn, completely assembled, flow-tested and ready to install. Idle mixture and idle speed are set at the factory and require no adjusting. It takes but a few hours to install; George consumed less than three. The photos show how the job was done.

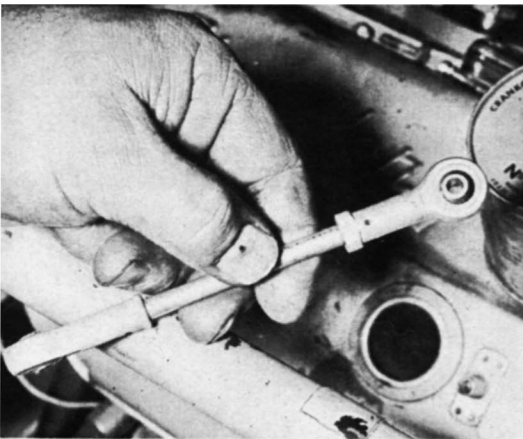
Continued on following page →

40 EASY HORSES

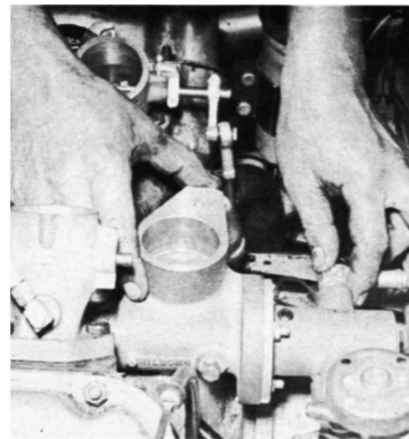
Tuning Tips

Here's what Stu Hilborn, president of Fuel Injection Engineering says for first-time users:

1. Start with R-11 plugs or the equivalent. Generally the plugs take a long time to show any color. This is due to the extreme clean-burning of the finely atomized fuel. Do not change the mixture because of plug readings based on only a few laps. Pay more attention to the indications on the tops of the pistons than to the plugs.
2. Fuel consumption will be far less than with carburetors; perhaps only 50 percent or 60 percent. On long races the fuel load may be materially reduced.
3. Gear ratios may be raised slightly as a result of the increased horsepower.
4. Extreme smoothness of power makes control easier for the novice drivers, but may cause them to under-estimate the acceleration at times.
5. In case of any trouble, disconnect the nozzle hoses, remove nozzle caps, and blow back through the nozzles with air pressure. If it still fails to operate correctly, send the injector and the pump to the factory for test. Do not permit well-meaning but uninformed persons to tamper with it.
6. Do not allow the fuel level in the tank to get down to the last gallon as it will wash away from the pickup in the tank when the car is in the turns. The resulting gulp of air sucked in will give a momentary misfire in the engine. This is the first warning when running low on fuel.
7. Avoid the tendency to fool with the adjustments continuously. The unit is ready to run as received. Install the injector, select the desired by-pass jet and go out and race.
8. The seals in the fuel pump should be replaced every year.
9. Shut the fuel off when the engine isn't running to keep the nozzles from dripping.
10. After the car has been standing with the engine hot, it may be noticed that the throttle sometimes becomes a little tight. This is due to the aluminum casting picking up heat from the engine and expanding. As soon as the engine is started the fuel spray cools it down and the throttle frees up immediately. #



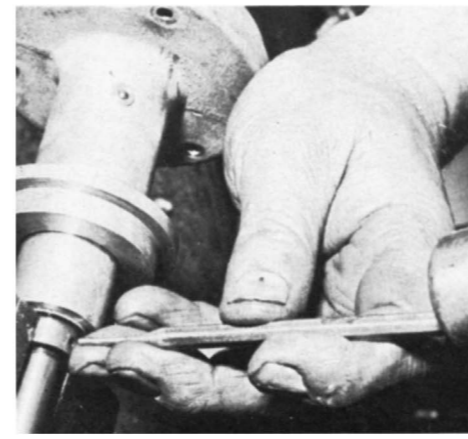
7 Foot pedal must next be linked to throttle. All that is necessary is a switch-over link which changes forward motion to side movement.



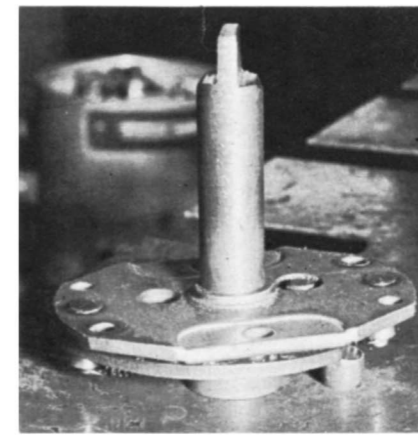
8 Combination of fuel pump and distributor drive unit is installed in normal distributor slot. First shorten the distributor drive shaft.



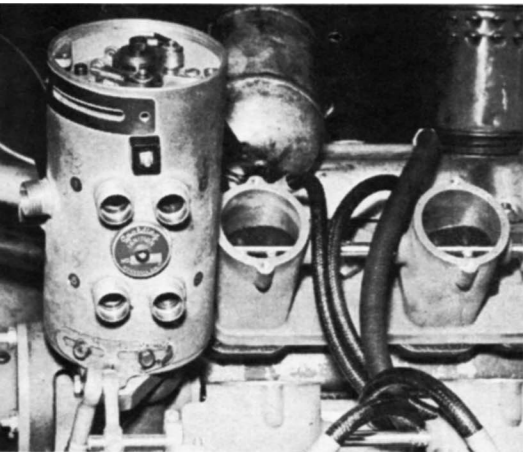
9 Reason for cutting drive shaft. Unit would be above seat of the pump. The Spalding distributor would go above the hood cover.



10 The aligning pin on the drive of the distributor must first be removed so that shaft can be dismantled before cutting to right size.



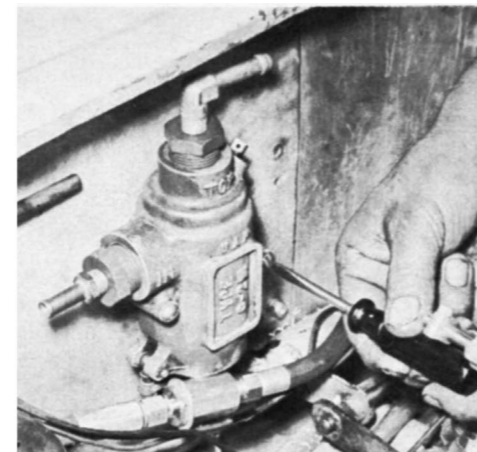
11 This is how the shaft looks after it has been cut and re-ground with the standard slot-end. This is a must on all distributors.



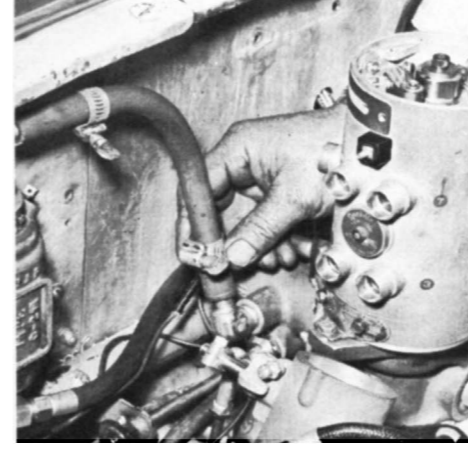
12 Pump from kit is connected. Metering jet hose connects to pump outlet. By-pass container joins the line to the fuel tank.



13 High quality filter is necessary with injector systems. Stock fuel block or fuel filter bolted to fire wall is removed and discarded.



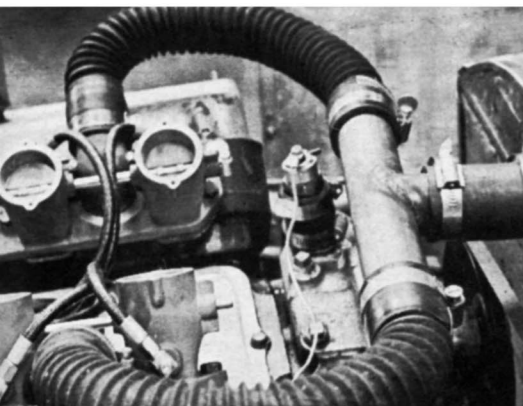
14 Hilborn suggests aircraft filter, CIA (small) or C2A (large) or both. Ceramic or laminated filters are not recommended.



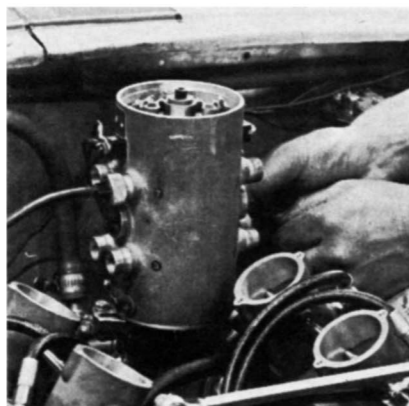
15 Hoses can now be installed. Half inch line is used to fuel pump. Return line is 3/8 inch, Neoprene hose with clamps is best.



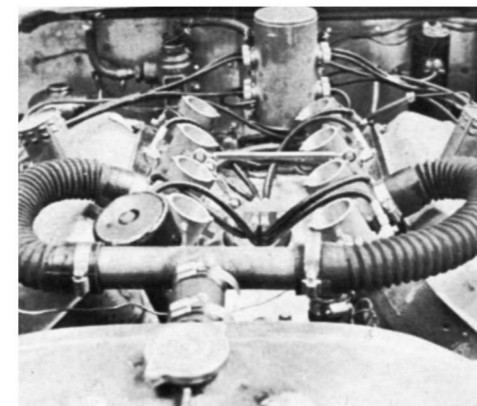
16 Return 3/8 line to the tank is being connected. Line must enter tank above the fuel level, and fuel cap should be air-vented.



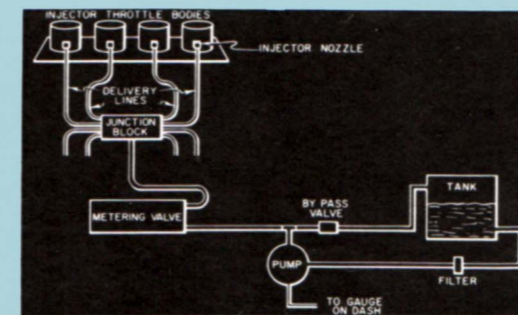
17 New water connection is necessary on injector system. Home-made "T" connects radiator to injectors through flexible hose.



18 Distributor is hooked up and statically timed. Fine tuning is done on chassis dynamometer and is a must with injector systems.



19 This is the completed fuel injection set up ready for firing. The new installation yielded nearly 400 hp, and instant pedal response.



Schematic shows set up to one bank of injector throttles. All delivery lines should be exactly the same length to insure equal flow and pressure to all nozzles.