

A VW TRENDS EXCLUSIVE!



The Split Second FIS2 fuel injection kit is designed for the single- or dual-port 1600cc Volkswagen Type I engine, but its MicroSquirt ECU (with its preloaded base map) can easily be modified for smaller or larger engines as well.

AFFORDABLE AND EFFICIENT FUEL INJECTION FOR THE MASSES

By Eric Geisert

Wouldn't it be great if someone figured out how to add fuel injection to a classic VW engine efficiently and cost effectively, and if they designed it so you wouldn't need a doctorate or specialized tools to install it?

Folks have been making performance aftermarket parts for Type I engines for more than 60 years, but a new type of no-nonsense fuel injection system was recently designed, built (in the USA), successfully tested, and readied for the home VW builder.

Split Second, a Southern California company that designs and develops their own precision tuning components for various OEM and aftermarket segments, have turned their attention to the '60s-era Type I engine. Used mostly in stock carb replacement situations, their FIS2 kit comes with all the parts and pieces you need and a brief but well-detailed instruction sheet.

The fuel pump, regulator, and filter come pre-assembled as one unit. The

throttle body itself is a direct fit to the stock single- or dual-port intake manifold, and what little wiring there is all clearly labeled. A custom twin-line fitting converts the standard gas tank to return-line style for fuel injection on the bottom of the stock gas tank. A head-temp sensor replaces a mounting screw for the head tin. The whole kit is well-thought-out. There are only a few more steps to the installation process than what is shown here (mostly routing fuel

lines and connecting wiring), but you should get the idea.

VW Trends was the first to document the installation, witness the dyno testing, see the fuel mileage road-test results, and get the complete run-down of how the Split

Second FIS2 system works in the real world — and we were impressed. As the dyno chart shows, there were performance gains in both torque and horsepower and, after some simple tuning, the engine runs smoothly and is more responsive. **VWT**

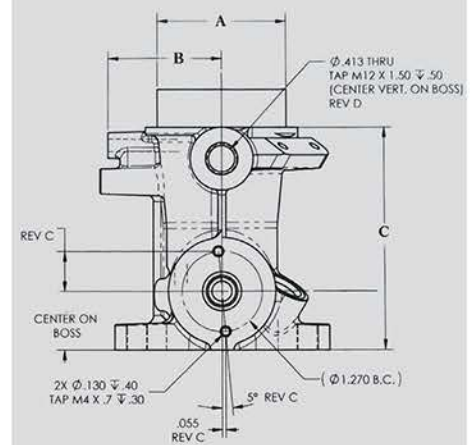
Split Second
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splitsec.com



1. The aluminum throttle-body unit is manufactured in the United States, and VW Trends visited the massive foundry where they pour them.



2. The Split Second FIS2 was developed and designed to be as effective as it is simple. Here's the fully assembled FIS2 throttle body (left) compared to the 34-PICT-3 carburetor that was taken off the test engine.

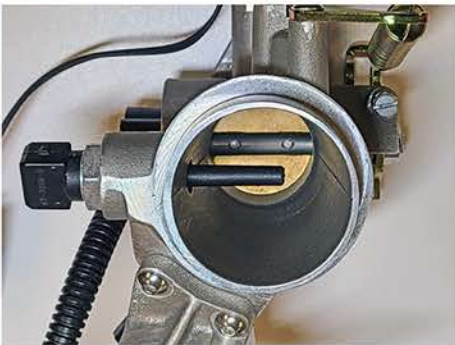




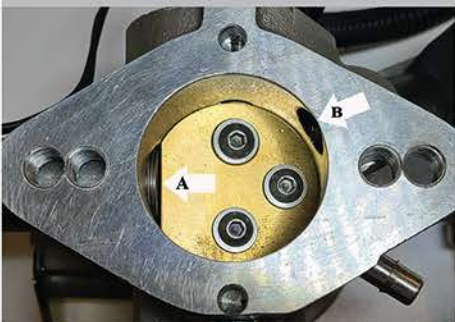
3. Assembly of the kit components, including the throttle bodies, is done at Split Second's Santa Ana offices in California.



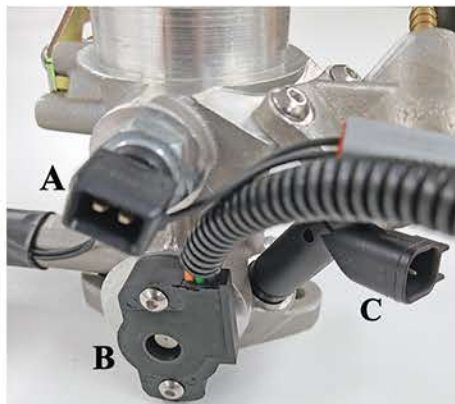
4. The throttle body comes with all integrated parts pre-assembled.



5. Looking down the throat of the throttle body you can see the IAT sensor just above the butterfly. Bottom view: The body's mounting surface is drilled for both 30-PICT and 34-PICT carbs. Also visible are the air idle sensor (A) and the injector (B).



6. The FIS2 throttle body has a 34mm intake, the same as the 34-PICT-3 that came off the test vehicle.



7. Other integrated parts of the throttle body include the intake air temp sensor (A), throttle position sensor (B), and the fuel injector (C).



8. To make installation easy, the outflow and return fuel lines exit and enter the stock gas tank using the same fitting.



9. Since no crank sensor is needed with the kit, we'll add an RPM-pickup to this aftermarket pointless vacuum-advance distributor. This is the "before" photo of the distributor's innards. (Remember to pull distributor from its TDC #1 position for easier reinstallation).



10. After the removal of the vacuum unit and arm, the ignition timing advance is locked in place to ensure the points' signal (this system can use points or an electronic trigger) pulses at a fixed number of degrees from TDC.



11. The original coil wires can now be fed back through the distributor's casing.



12. The fuel pump, regulator, and fuel filter are all pre-assembled as one unit.



13. This particular kit went into a vintage '62 crewcab Bus (owned by famed VW drag racer Shawn Moore). The space for the fuel pump assembly under a Bus is a bit more crowded than under a Bug. Note the new gas-tank feed and return lines at the top of the photo (arrow).



14. The old mechanical fuel pump and mounting studs are removed and the case hole blocked off. You'll need to remove the old ignition coil from the fan shroud, too.



16. The modified distributor is reinstalled and connecting wires attached.



15. The original carb is removed and the new throttle body put in its place.



17. The new LS1-type ignition coil mounts using the old coil's screw holes.



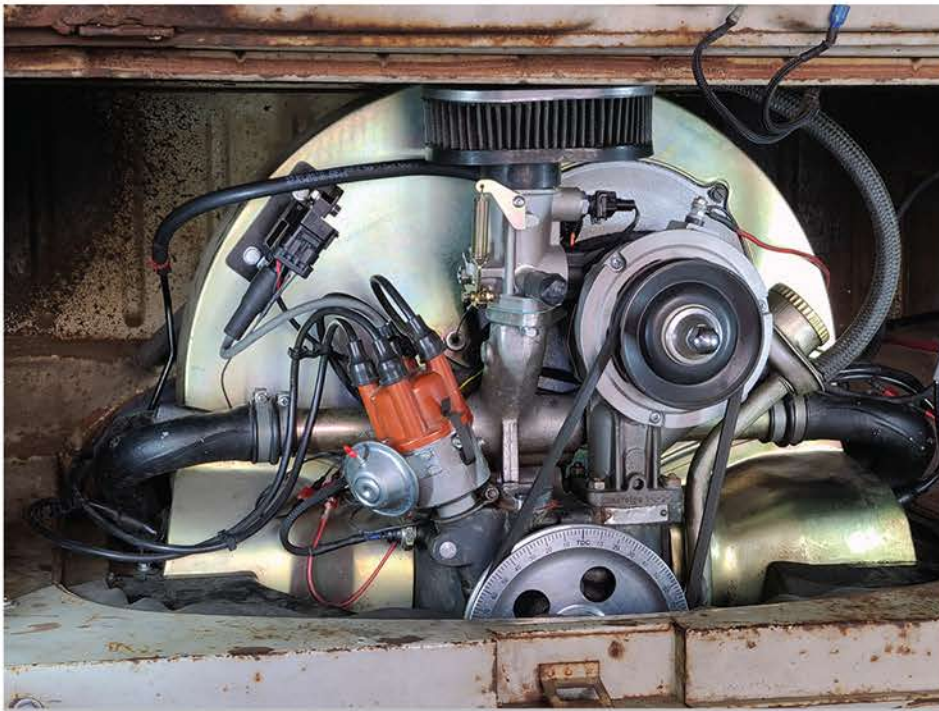
18. To mount the adapter for the head temperature sensor, one of the forward screw mount locations for the engine's head tin is used.



19. A vacuum hose runs from the backside of the throttle body's base to the MAP sensor.



18. A bung for the O2 sensor needs to be welded into the exhaust just before the header, pointing upward about 30 degrees so gravity will help drain any condensation.

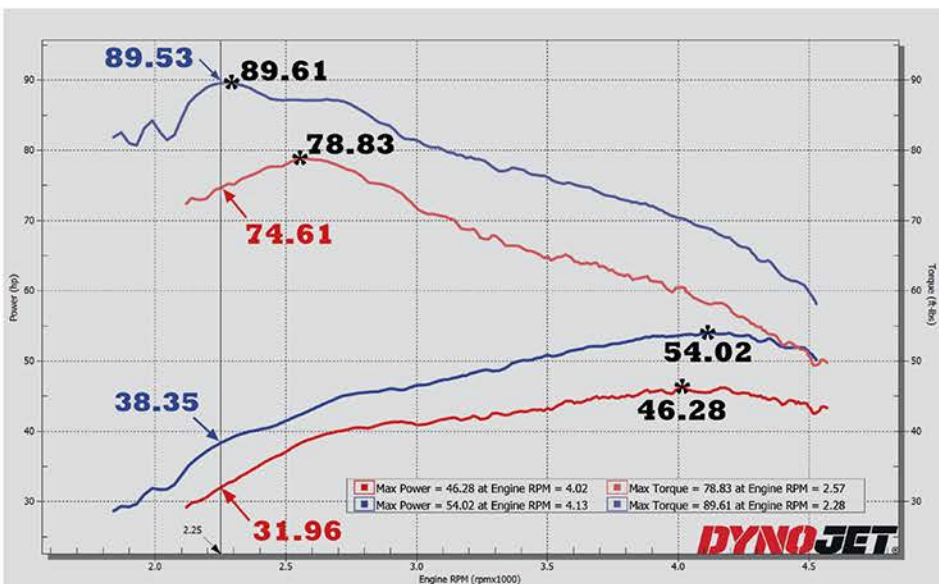


20. The new fuel injection system is hardly noticeable in the engine compartment, but you'll notice the difference with the added horsepower and fuel economy.



22. Split Second's Danny Foerster volunteered to run the mileage test: He first filled up an empty gas tank with a gallon of fuel, then drove an equal amount of highway and city miles until the Bus sputtered and nearly ran out of gas. (Warning: Running the fuel system completely dry will damage its components.) The result was a solid 27 miles to the gallon.

AS SEEN IN



21. Set up on a professional wheel dyno test, our test vehicle (Shawn Moore's '62 crewcab) produced 46.82 peak horsepower at about 4,020 rpm and a max of 78.83 ft-lbs of torque before the addition of Split Second's FIS2 fuel system, which increased the peak horsepower to 54.02 at around 4,130 rpm and produced a max of 89.61 ft-lbs of torque.

