

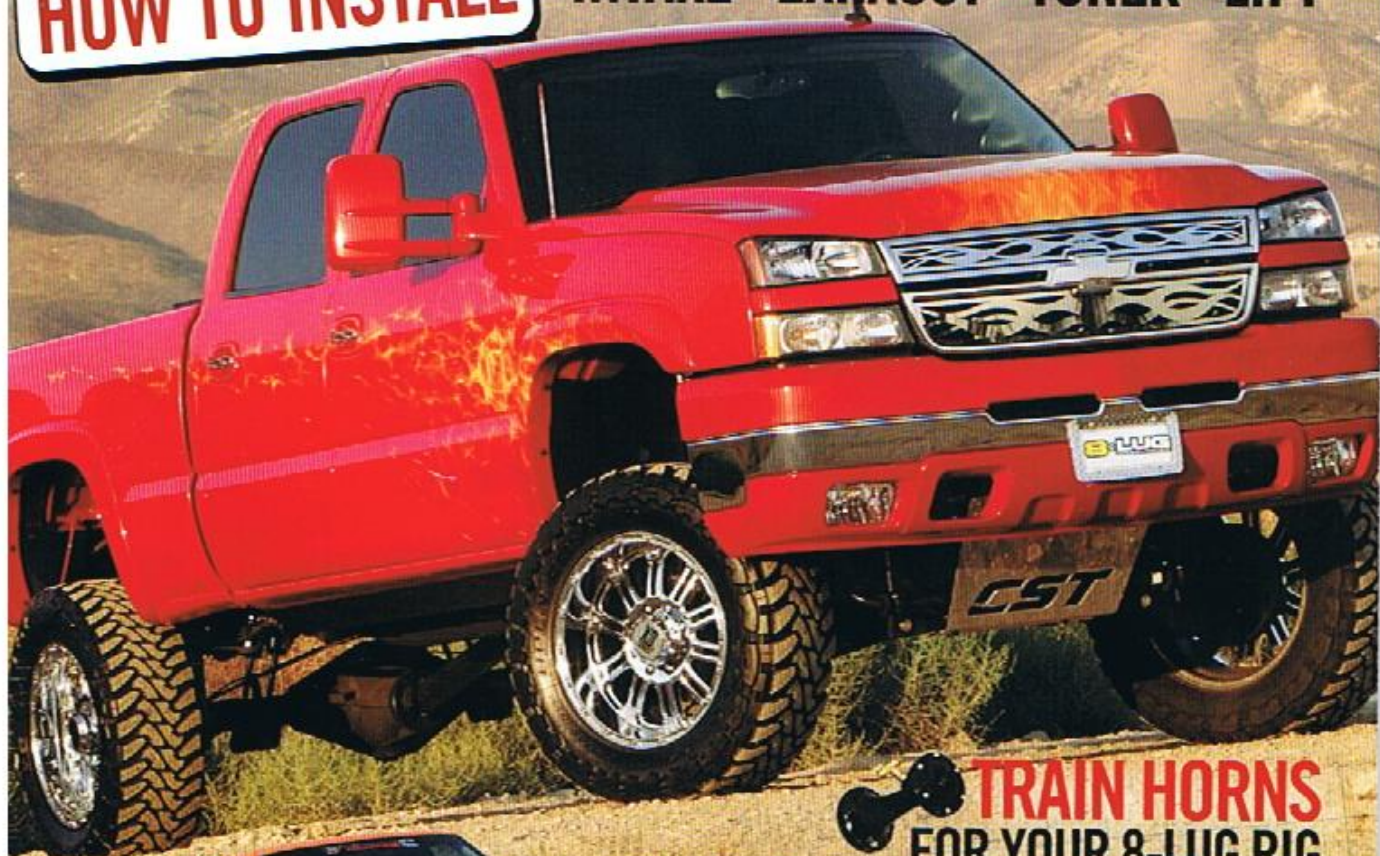
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# 8-LUG DIESEL TRUCK

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# FITCH FUEL CATALYST

## 7,000 MILES OF TESTING SHOWS POSITIVE RESULTS



The '99 Dodge 4WD 5.9L Cummins turbodiesel was previously equipped with BD Power Plug-N-Power (50hp increase), a BD exhaust brake, a BD 4-inch exhaust system, and an Advanced Flow Engineering air intake system. The 7,071-mile trip pulling 15,650 pounds averaged 14.9 mpg—about 1.5 mpg better than last trip.

### MAYBE YOU'VE SEEN THE ADS THAT GO SOMETHING LIKE THIS:

"Would you like to be able to reduce the fuel/soot contamination from your diesel engine by 75-95 percent; stop fuel deterioration; naturally increase the cetane rating by 1-1.5 points; increase mileage by 5-10 percent; have a smoother-idling, easier-starting engine and increased throttle response; clean up the air by reducing the particulates by 30-40 percent; eliminate the use of any additives; and have a 90-day money-back guarantee, no questions asked, if you're not completely satisfied?" Yeah, we've wondered about the Fitch fuel catalyst, too. Is it another snake-oil product? Or does it work?

We decided to find out. The Fitch fuel catalyst by Advanced Power Systems International (APSI) has been on the market for nearly 15 years and has been tested by several government agencies. The manufacturer tells us that the U.S. Department of Energy, Advanced Propulsion Technology Center at Oak Ridge National Laboratory tested the Fitch fuel catalyst and concluded that "it is very clear that the catalyst is changing the fuel composition, and in the direction of higher-octane and higher-energy fuel constituents, for all three fuels analyzed." The three fuels refer to diesel, gasoline, and jet fuel that can be used in conjunction with the Fitch unit. In 2005, the U.S. Environmental Protection Agency (EPA) certified the Fitch fuel catalyst and stated that vehicle engine warranty coverage may not be denied based on the presence of the unit.

The Fitch fuel catalyst is composed of a heterogeneous metal alloy (19 metals) that is a true catalyst by definition in that it affects but does not become a part of the fuel or filter the fuel. APSI tells us that when the fuel passes through the Fitch unit, the unit improves the combustibility of hydrocarbon fuel by treating the fuel immediately before it enters the combustion chamber. As the fuel is exposed to the metals in the canister, the catalyst acts on the naturally degraded extreme ends of the fuel spectrum. Less soot comes out of the tailpipe because the unburned fuel is now able to ignite and not end up in the oil as

soot. We're told the catalyst acts on impurity molecules in the fuel, converting them into extremely active small molecules, which crack any long-chain paraffins to form lower-weight saturated alkanes. As a result, fuel burns cleaner and more completely. This process is similar to the cracking process used to create different fuels at an oil refinery.

By facilitating a complete combustion, the Fitch people say their unit improves fuel economy and increases power while reducing emissions. The use of the catalyst also results in cleaner engine oil, reduced carbon buildup in the engine, easier starting, reduced maintenance, and prolonged engine life. The Fitch unit can be used on any size internal combustion engine. On small engines, such as in garden

equipment and motorcycles, small pellets can be dropped into the fuel tank to treat the fuel. The in-line fuel applicator is the more effective method and can be used on larger-engine applications, such as in passenger cars, semitrucks, 5,000hp diesel tugboats, trains, and airplanes. The installation shown here in our '99 Dodge Cummins 5.9L turbodiesel used the Silver Millennium Series unit for testing during a 7,000-plus-mile trip.

To follow along as an actual unit was being installed, we went to the biggest western U.S. dealer for Fitch, Tom and Gigs in Coos Bay, Oregon, which handles Oregon, Washington, Idaho, Montana, and North Dakota.

Coos Bay Fitch dealer Tim Stillion tells us that to be able to verify any mileage and oil change results with this unit, you need to have a very good mileage-documentation program going before having the Fitch unit installed. Keeping long-distance and local fuel-mileage records will only prove the effectiveness of the unit. Most mileage records, including the Dodge test mule we used and the U.S. Army Humvees, show a savings of around 5 percent. This can vary with driving habits.

The installation of the Fitch unit on a Dodge 5.9L Cummins turbodiesel is one of the simplest among the Big Three (Dodge, Ford, and GM). On the Cummins engine, in our '99 longbed extra cab, the Silver Millennium Series unit mounts between the fuel filter and the high-pressure injector pump. On this model year, the plastic fitting in the line between these two components can be removed, and the Fitch unit installed at that point. There is not much room here except in front of the master cylinder. As you'll see in the photos, a bracket was fashioned from  $\frac{1}{2}$ -inch steel and mounted to the two master-cylinder bolts. This placed the unit just below the master cylinder and right next to the fuel-inlet line, which feeds the HP injector pump.

This pickup (with 76,152 original miles) had been previously fitted with a BD Power 4-inch exhaust system and an aftermarket muffler,



BD Plug-N-Power for an increase of 60 hp and 120 lb-ft of torque, a BD exhaust brake, and a custom air-intake box and high-flow filter from Advanced Flow Engineering. The 359-cid turbocharged engine is backed by a five-speed manual transmission and a 3.55 rear gear. For the 7,071 miles driven, the truck towed a hitch-style, 29-foot Holiday Rambler at an even 60 mph, pulling a combined weight of 15,650 pounds. This vehicle was chosen for its great mileage records to the same destination last year without the Fitch fuel catalyst.

On the first leg of the journey, from the Oregon coast to just past the Colorado River (around Laughlin, Nevada), the mileage ranged from 12.1 to 15.7 mpg. In the hilly country, we averaged 13 mpg, and the overall average on this first leg was 14.1 mpg. This is about 1-1.5 mpg better than the last trip at this point.

It was obvious the catalyst was working. One of the first things to happen was the noticeable lack of black smoke coming out of the exhaust pipe when stepping down on the throttle. Even the exhaust-pipe-tip residue was becoming lighter. Before the installation, the tip was always black around the edges. The statistics from Fitch indicate that on a diesel, there will be about a 40-60 percent reduction in opacity from the exhaust. This means the inside of the engine will stay a lot cleaner, too. It also means the engine oil will be cleaning the old residue out of the rings and other parts of the block. At 1,294 miles, the engine oil was black and needed to be changed, as indicated by Fitch statistics. The driver pointed out that it ran and idled very smoothly and started easier—much better than before.

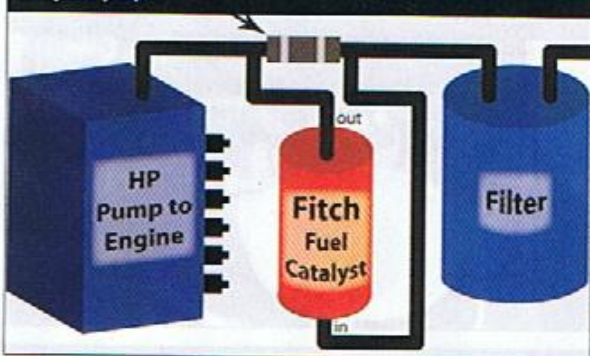
On one of the return legs of the trip, from Evanston, Wyoming, to

Boise, Idaho, with perfect, flat, no-wind conditions, a total of 440 miles were driven using 26 gallons. This calculates to 16.9 mpg, a 1.5-mpg improvement over the last trip. Under windy and hilly conditions, on the 304 miles from Laramie, Wyoming, to Evanston, we only saw 11.7 mpg. On the last trip, the best mileage was 17 mpg, with a good tailwind in Kansas on flat ground for more than 300 miles. The 17 mpg was the best mileage ever, towing 15,650 pounds. Even with variable conditions, the 7,071-mile trip used 473 gallons with an overall average of 14.9 mpg. This is about a 1.5-mpg improvement compared with the last trip. **8-L**



**1** For most automotive applications, the Fitch Silver Millennium Series fuel catalyst mounts between the fuel filter and the fuel pump. Since mounting is usually a custom fit, making a bracket is part of the installation job. The kit does include fuel-canister fittings, hoses and clamps, and instructions.

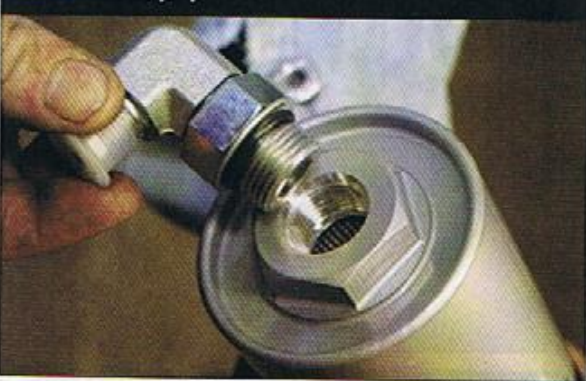
**2** On the '98-'02 Dodge 5.9L Cummins diesel engine, it's a rather easy but tight installation on the left side of the engine. The Fitch fuel catalyst mounts on the low-pressure side of the fuel system, between the filter and the HP injector pump.



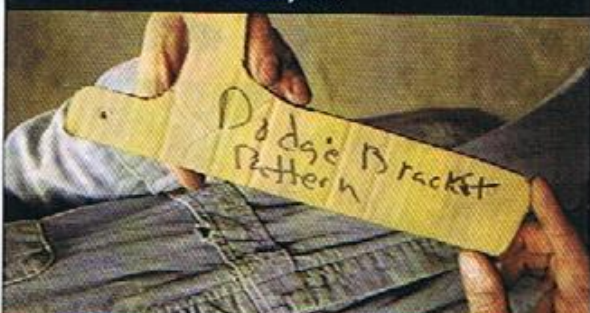
**4** With 19 metals inside, the unit is a little heavy (about 10 pounds). The size of the canister is determined by the size of the application, fuel flow, horsepower, and displacement.



**3** The inlet and outlet fittings in the kit make a positive seal with an O-ring at each end of the fuel-catalyst canister. It operates under low pressure from the tank's fuel pump.



**5** Some installations require custom brackets so the canister can be mounted as close as possible to the filter and pump. For this installation, a template was needed to hang the canister bracket on the two master-cylinder bolts and mount it below the master cylinder.



continued on page 112 ▶



## HELP FOR SMALLER APPLICATIONS

The Fitch people have also developed small pellets that can be inserted into fuel tanks via plastic containers called drop-ins. They work in motorcycles, lawn equipment, and fuel-storage containers. This product is great for vehicles that are stored, since it prohibits the microbial growth that deteriorates all fuels. Since they take years to expire, they won't have to be replaced in, say, your home heating-oil tank or stored snowmobile. The longer the pellets sit in the fuel tank, the more they will treat the fuel and increase the octane (or cetane in diesels). In fact, some motorcycle riders who have installed the pellet containers in their bikes have been able to go from premium fuel to regular without pinging or losing power performance. This is a fuel savings of 20 cents a gallon, not to mention better mileage, fewer emissions, and a cleaner engine inside.

Since the Fitch fuel catalyst does not filter the fuel and acts only as a catalyst to crack the fuel into smaller, burnable particles, there is no maintenance required. The warranty is for seven years/500,000 miles, and the units typically last from 750,000 to 1 million miles. APSI also has a 90-day money-back guarantee, no questions asked, if you're not completely satisfied.

So, from our own testing experiences, we have to say the Fitch fuel catalyst did what it was claimed to do.

**8** The canister is marked inlet and outlet for the direction of fuel. The unit is totally maintenance-free.



**10** The large Fitch canister, which treats the fuel directly before it goes into the combustion chamber, is the optimum choice. However, since the Fitch fuel catalyst will treat most petroleum fuels, and a canister cannot be used on a two-cycle weed trimmer or two- and four-cycle motorcycles, the company offers pellets that can be dropped into the tank through the fuel filler.



**6** On any '98-'02 Dodge Cummins diesel, the installation is made easy by removing the short plastic hose connector shown here. This stock connector joins the low-pressure fuel filter to the high-pressure injector pump.



**7** This will give you a good idea how the bracket and canister mount together hanging under the M/C reservoir.



**9** The Fitch fuel catalyst will remove 60-75 percent of the soot from the exhaust pipe, increase your mileage by about 5 percent or more, and keep the engine clean inside. The EPA tested a GM Drama diesel (EPA CYC-75 Drive Cycle) and found a 12 percent fuel economy improvement and an 18 percent emissions reduction.



**11** Do not remove the catalyst from the plastic container. The Fitch drop-ins will eliminate a lot of the smoke from two-cycle engines in addition to the other benefits mentioned above.



### PRODUCT PROFILE:

Advanced Power Systems International  
888/881-2774 • [www.fitchfuelcatalyst.com](http://www.fitchfuelcatalyst.com)

Tom and Gigs, Inc.  
800/267-4603 • [www.tomandgigs.com](http://www.tomandgigs.com)