



The David Cortina.

Photo by Gary David

Minor fix by Gary David

When I pulled the Lotus Cortina out of storage this spring I found that the speedometer had joined the tachometer on the disabled list. With LOG approaching and Gordon Morris scheduled to drive our Cortina to LOG I figured I needed to fix at least one of them.

I ordered a new speedometer cable from the UK and when it arrived I started by jacking up the front of the car and unbolting the old cable from the gearbox. Replacing the bolt with the new cable didn't go well as the space available was too small to get my hand in with the bolt and mounting bracket.

My first solution was to ask the petite woman living next door to come over and crawl under the car to put the bolt in. The woman is a doctor so this should be a snap for her. Sandy suggested I investigate "Plan B" as she did not want to hurt those small hands and she knows how often I come in bleeding while working on the cars.

Plan B involved removing the rear transmission mount and dropping the rear of the gearbox down several inches, attaching the cable and then bolting everything back up. Not bad, but this turned out to be the easy part.

I needed to remove the seats from the car to give me access to crawling under the dashboard but that didn't help. It seems that Lotus employed elves to assemble things and I couldn't get access from below. Next off came the steering wheel and column surround and, of course, the crash pad on top of the dash. There I found that the defroster vents were improperly installed so I had to fix them. Another couple of screws and the Lotus six gauge cluster was able to be pulled forward enough for access. Of

(See More CALL, page 10)



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Tired of fiddling with Strombergs?

by Don Kuzma

Tired of fiddling with Strombergs, checking the gap on your points, setting the timing, and that "rich" exhaust smell? I know I was and I was determined to do something about it.

I have a 1969 Lotus Elan Plus 2 and use it as a daily driver when it is running, but it does take a lot of TLC to keep it running. EFI or Electronic Fuel Injection could provide the solution but I couldn't find a set-up for the Lotus Twin Cam engine. I did find a supplier, Patton Machine at www.pattonmachine.com, that specializes in converting LBCs to TBI (throttle body injection). The conversion uses the existing Stromberg carburetor bodies as part of the system, but it had never been adapted to a Lotus.

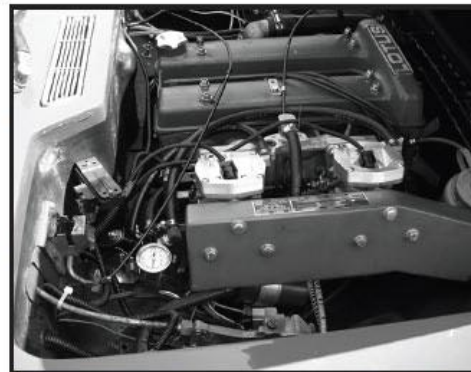
Feeling ambitious, I contacted Rick Patton to find out what it would take to put a kit together for the Lotus. Rick supplies the hardware and fabricates the kit components. The computer and software are included in the kit and are supplied by Affordable Fuel Injection (AFI).

The kit is fairly generic and an existing four-cylinder, dual-Stromberg set-up would work. The difference would be in the program controlling the system. More on this later.

One of the selling points of the kit is that the car can easily be converted back to carburetion if needed. It can even be done on the side of the road if you are carrying the original parts. I guess this is true and could be done, but why? The fuel injection system is based on GM components and is pretty much a bulletproof system. Also, I don't think it is as easy as it sounds.

And if you want, the original Stromberg domes can be reinstalled to maintain the original look of the engine.

The system was easy to install and can be done on a long weekend with proper planning. There is plenty of



The completed installation.

Photo by Don Kuzma

room under the hood for the various system components. The difficult part on the Plus 2 is determining where to put the O₂ sensor. Installing it in an Elan may be more of a challenge. Once the location was decided, I had to pull the header and have an O₂ bung welded in at a muffler shop.

The balance of the installation involved a conversion of the distributor to electronic ignition, installing an electric fuel pump, fuel pressure regulator, and new larger fuel lines including a return line, mounting the various sensors, and deciding where to mount the ECU (Electronic Control Unit). The conversion of the Strombergs was the easiest part and consisted of adding a blanking plate, removing the domes and piston assemblies and adding a supplied machined housing that holds the injector nozzles. Just about everything needed for the installation is included except for hoses, fuel line, and fittings for the fuel line.

Once the installation is complete and the car is running the ECU can be connected to a laptop via the supplied OBD 1 cable to generate a data log. The data logs are evaluated by AFI, which will supply a new program for the computer to maximize engine performance for your driving style.

Since this was the first Lotus, there were a number of data logs made and AFI supplied new chips until the engine was fully debugged. Now that the engine has been profiled, the fine tuning should be minimal on any future twin cams.

Were there problems? Yes, there were some. The biggest problem was the same as always existed with the Lotus. It is a fiberglass body and finding and maintaining good grounding points is an ongoing problem.

Patton's website has good videos and instructions to walk you through the process. I will say that all of the information needed to install the system is on the website, but it could be a little better organized. I guess that is the price you pay for something that is not model-specific.

One note of caution: read everything twice and then do it again for good measure. This is definitely a project that goes better if you understand where you are going to end up. That will help you plan on getting there. Plan your installation and check the path for all of the hoses and wiring before committing to the installation. The time will be well spent and eliminate having to do things more than once. Trust me on that one.

Did the conversion meet my goals? Yes, and more. The "rich" smell is gone, the car starts easily, is now reliable, fuel mileage has improved, and the car is running much cooler. In fact, when AFI was reviewing the data logs they told me to put in a higher-temperature thermostat because the car was running too cold. In the 15 years I have owned Lotuses, I have never heard of a Lotus running too cold — they are usually overheating!

I am looking forward to a summer of driving and not constant fiddling. I wonder what I'll do with my spare time. Maybe another project car?

More CTR (Continued from page 7)

A TR6 starting problem — and how I solved it

by Jay Jablonski



TECH TIP

I have had problems starting my 1974 TR6 for quite a while. The starter would sometimes just spin or barely engage and not spin the engine a full revolution. The problem was really evident at the 2003 Regionals in Fredericksburg, where I had to rely on my reserve starters, Kevin and Brian. (Owning Triumphs is a good reason to have children — who can push.)

The starter had been completely rebuilt about three years ago. Most folks I discussed the problem with said the problem was with the starter or the Bendix gear. I had read an article that said that the ring gear could shift on the flywheel over the years and cause the starter to not engage fully. No one but me thought that could have been the problem.

After getting the car home after Regionals, I removed the starter to try a different starter. With the starter out, I was able to see the ring gear and flywheel. Lo and behold, there was a gap of about 1/4" between the gear and the shoulder on the flywheel! I pulled out my trusty but greasy Robert Bentley workshop manual, and the specs indicated a maximum gap between the ring gear and shoulder of 0.025", not 0.25".

The good thing is that I found my problem. The bad thing was the solution to the problem did not involve just rebuilding the starter, but it meant removing the transmission and flywheel to have the ring put on correctly.

After the flywheel was removed I noticed a couple of things with the ring gear. There were four or five teeth with significant wear from the starter. Also the other side of the gear teeth had a chamfer on their teeth to help



Measuring the gap between the ring gear and the shoulder on the flywheel indicated something amiss. Below: The ring gear reinstalled correctly. Photos by Jay Jablonski



the Bendix engage the ring gear. This meant that the gear was on backwards. Mike Hado was able to remove the ring gear and reinstall it on the flywheel.

After completely installing the transmission, I realized I forgot to put the safety wire on the bolt holding the throwout bearing fork. This meant once again removing the transmission, putting on the safety wire and reinstalling the transmission.

But then I connected the battery and turned the key. The starter engaged without a miss! My starting problem was solved.

CTR calendar

August 4 — CTR vs. CT MG Mini Golf Challenge, Farmington, Conn. See accompanying article.

August 23-25 — British Marque Triathlon X, Jimmy Peak Mountain Resort, Hancock, Mass. Info and registration: www.britishmarque.com.

September 8 — CTR's 33rd Annual British Motorcar Gathering & Picnic, Wickham Park, Manchester, Conn. Info and registration: www.CTriumph.com. See page 3 for more details.

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