

Commodore Ignition Module

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PROFIELD Performance Module

Commodore 5.0L V8 Racing Performance Ignition Module

Sold on an exchange (change over) basis, this is a "buy it now" auction for an Enhanced Performance Ignition Module to suit the Commodore 5.0 V8 engine as used in the VN to early VT models. This module produces a stronger spark by featuring: Dual Coil Driver devices, improved earthing and cleaned up high current paths using only copper to deliver maximum spark energy for maximum performance, coupled with uncompromised reliability. Dual coil driver devices makes this module very rugged and very reliable.

No engine fires every cylinder 100 percent of the time. It is a known fact that a better spark means better running. Indeed as much as 10% of the ignition cycles in an average car engine can result in misfires. A weak spark results in random misfires and loss of power and economy. If the spark is improved, the misfires are reduced. This module improves the spark energy. One of my customers reported a 15% apparent power increase on a test module.

Tested with Bosch High Energy Coils (HEC716)

MORE POWER
BETTER FUEL ECONOMY
LOWER EMISSIONS
SMOOTHER RUNNING
RACING PERFORMANCE
MAXIMUM RELIABILITY
SAVE ON FUEL COSTS

These modules are custom made and hand tuned. To produce these modules, I adhere to the following:

- Start off with only the newer Bosch circuit boards.
- Every component I've ever seen fail in these modules is renewed, some with higher voltage & power rating. This of course includes all parts that cause the intermittent stopping problems.
- Dual Coil Driver devices are fitted (parametrically matched).
- Immunity to voltage spikes is raised by 40V (from the standard Bosch module).
- Earthing is improved to eliminate ground wire losses so as to deliver maximum spark energy.
- High current path is rebuilt using only hi-conductive copper to further minimize losses.
- Double diode fly-back protection is added.

Of all the modules I see, 90% of them are fixed with a standard service, that means most break-downs are avoidable. The remaining 10% are unavoidable random component failures - this is why you should carry a spare module. And unfortunately some of these can cause the module to go short-circuit and burn out the coil. This is a well known problem with these ignition modules. THIS MODULE WAS CREATED TO COMBAT THIS PROBLEM. I can't completely guarantee that it will eliminate the occasional module from doing this but it will certainly reduce the propensity for it since the dual coil drivers share the current and are much less stressed; there is also redundancy if one should ever fail open-circuit. So, the 90% is fixed and the 10% is substantially reduced.

Not only do dual coil drivers provide greater protection against failing short-circuit, but if one device gets heat stressed and stops switching, then the other will take all the load. The dual approach also reduces the voltage loss across the

module when the coil is switched on (this is called the saturation voltage). That equates to more spark energy.

Sentimentally attached to yours? No problem! Your own module can either be fixed/refurbished (see my other auction) or performance enhanced to your preference. I can enhance older modules, however a full rebuild will be necessary to bring it up to the Profiel standard.

Modules with broken or missing external cases, connectors or leads are NOT accepted as an Exchange module. These things are custom made parts and cannot be sourced. It must have some degree of repairability about it!

There is a 3 year warranty on this module. Email me for international postage rates (to New Zealand?) payable by buyer.

Do lots of driving?
Rely on your car?
Planning an around-Australia trip?
Need high reliability?
Want maximum power?

When performance counts this is the one for you!

This is an exchange auction. You send me your old module and then I send you this enhanced one.

Standard exchange modules are also available. See my other auctions.

NOTE: When removing the module take care that the rubber seal inside the smaller connector doesn't get lost! -It should stay with the car-side of the connector.

Also, the two mounting bolts have a nut and sometimes a washer on them underneath. Don't let them fall to the ground and lose them. The washers could also be stuck to the car body! (Don't send me the bolts since you will need them for your new module).

Payment by:

- Paypal
- Direct deposit into ANZ bank account
- Personal/company cheque (subject to clearance)
- Money order

- Cash on pickup

Payment to be received within 1 week of closure. Pickup from Epping, Sydney area, or exchange via Registered Post. If posting your old module then please use Registered Post - only Express Post if you absolutely need fast turn-around. This module will be mailed to you via Registered Post with \$300 insurance, or Express Post Platinum.

Please email me with any questions, or, if you want to test drive one first, message me to arrange a trial.

Photos show:

1. The Profield Module
2. Installed in car
3. Scope traces showing current sharing between the coil driver devices.
The traces are upside-down due to the common point of the ballist resistors (inserted to do the current measurements) being on the positive side. Note that the current ramps up since the coil is inductive, then a high voltage spike can be seen when the coil fires.
4. Checking the coil driver device current sharing. Each Profield Module is individually checked on the oscilloscope.

LOOKING AFTER YOUR MODULE

Faulty ignition modules usually just stop. After all, it's just a switching circuit; it either switches or it doesn't. Well actually, some modules can be got going again by waiting till they cool down, or by knocking them, but anyway, the most common fault is that they start stopping when hot, then get progressively worse until the car won't even start when cold. Others just suddenly die and that's it. Actually, lately I've had more new modules than old ones to repair. Now this is the opposite of what you would expect, but the newer modules are not built as robust as the older ones and are dying earlier from structural failure than component failure. Some of the newer ones are only lasting about 5 years. Hence lately I'm getting reports of cars not starting again after they've turned them off, rather than dying while they are running and hot.

If your car is misfiring or running rough then it is most probably NOT the module. Check the usual things first: spark plugs, ignition leads, distributor cap & rotor.

On a Commodore 5.0 I would suggest changing:

- Distributor cap every 120k or 8 years.
- Rotor every 100k.
- Plugs every 20k.
- Leads, at least every 60k.
- Coils should be replaced before 200k. Yes they DO wear out! The insulation is constantly being chewed at by the spark and the older oil filled ones have been known to burst and catch fire. I change mine at 140k - but that's just me! However, if in doubt, change it!!! Since if the insulation starts deteriorating and shorting internally then the coil will start to draw more & more current this will ultimately cause the module to fail and it may fail by going short-circuit, which in turn will "finish off" the coil. Then you'll have a situation where you replace the coil only to have it toasted again by the module.

I run mine on LPG so I have to change the ignition leads every 45k because on LPG, if a lead ever dies, the LPG will start exploding in either the intake manifold or exhaust.

Distributor caps have a habit of suddenly corroding. One year it looks fine. You check it a year later and it's shot.

When changing rotors always keep the old rotor to compare against. I've seen some after-market rotors that are shorter by up to nearly 1mm. This is equivalent of a 2mm spark plug gap!

Yes - You will probably get an electric shock if you touch the coil driver device on top of the module with the engine running - this is normal. Avoid touching it! What you are feeling is the fly-back from the coil. When it fires you get around 25,000V out the secondary side, but you *also* get a high voltage spike (330V +/- 30V) back out the primary (12V side), which the ignition module must handle.

WARNING: DON'T LET THE case of the coil driver short to the chassis or it will turn your coil fully on. This will burn out the coil, it's only designed to be pulsed. The device should be coated to protect against this - if yours isn't then be careful.

By the way, the fly-back will increase if the coil has a harder time getting rid of the energy it has created when it's fired, such as if your spark plug gap increases or the ignition leads get old. This reduces the lifetime of the ignition

module - so get any electrical problems fixed fast! Ensure you don't spark test the car by seeing how far you can get the spark to jump. This is not good for it. With electronics now firing the coil, gone are the days when you do that!

Ignition modules will generally start to fail at anywhere from 7 yrs to 15 yrs depending on how much you drive the car and how hot the module is getting in the engine bay. It is recommended that you carry a spare module in the boot of your car just in case. I have seen one fail in less than 5 years. If you are over 15 yrs already then don't schedule a round-Australia trip in your car, as you are on borrowed time!

If your coil has died, **FIRST CHECK THAT THERE ISN'T A SHORT CIRCUIT** between the two fat end pins of the module's 6-pin connector. There should not be a short circuit between pins 1 & 6. A short circuit there means your module is holding the coil on.

In the past I have received a few Bosch modules via exchange that appear to have been damaged by voltage spikes. These can occur in the car by not having a good battery or by not having the battery terminals clean. The car battery has a second important function in the car, it is not just there to start the car. It shorts out voltage spikes from the alternator. This is why the alternator is wired direct to the car battery before the wiring goes off to the rest of the car. (Something to watch out for if you ever remove your voltage regulator - disconnect the battery first!)

How does a voltage spike occur?

When something that draws heavy current is turned on, such as your headlights, the electric field in the alternator ramps up to deliver the extra current. When the headlights are turned off again this electric field, which is sitting in an inductive system, cannot just disappear instantly, it has to decay away. That can leave two or three hundred watts of power with suddenly no where to go. $\text{Watts} = \text{Volts} \times \text{Amps}$, so if the current suddenly decreases then the voltage will suddenly increase (due to the laws of physics) to maintain the field. It's called an Alternator Load Dump. Alternator Load Dumps get shunted into the car battery to be shorted out. Weak batteries and damaged voltage regulators can cause irregular voltages.

Disconnecting a battery from a running car is a big "NO! NO!". The idea of doing this went out the window with the event of car electronics which was

incorporated into cars about 2 decades ago, but not many people seem to have changed with the times.

The original equipment modules have a voltage spike immunity that I'm not particularly happy with, so Profiel modules have this increased by 40 volts.

On 1996 and newer vehicles that are Onboard Diagnostics II (OBD II) compliant and have misfire detection, the OBD II system tracks and counts misfires. On most applications, the OBD II system uses the crankshaft position sensor (CKP) to look for subtle changes in the speed of the crankshaft between cylinder firings. If the crank suddenly slows a bit, it indicates a misfire. The only problem with this approach to detecting misfires is that the misfire monitor can sometimes be fooled when the vehicle is driven on a rough road. Consequently, some OBD II systems are programmed to temporarily ignore variations in crank speed under rough-road conditions. On some vehicles, the amperage of the spark current is analyzed when each spark plug fires to determine if the mixture burned or not.

I also have VR & VS 5.0 V8 automatic transmission computers (PCMs) available, both HSV and standard. Memcals include: BFPL (VR HSV), BLCC (VR V8), BLCJ (VR V8), CKUP (VS HSV), BWCU (VS V8).

Ok, time to forget all that technical stuff, it's time for the.....

***** TOASTED MODULE AWARD *****

This highly coveted award is given to the person who single-handedly destroys the most components in their ignition module. A new winner has emerged who has simply blitzed the field, despite the number of people who have tried.

CONGRATULATIONS GOES to..... DM (aka "Conan The Destroyer") from HIGHFIELDS in QLD!!!!!!

With no less than 6 dead transistors and both ICs, DM is the clear and outright winner. And, as a bonus, he is also the very first person to toast the ICs.

DM -

I'd just like to thank my family, the many shorting and cross earthing wires, the dud battery that poured acid everywhere, a now damaged alternator regulator and most of all the battery leads that came lose while driving because I forgot to tighten the damn things up! Most of all I'd like to thank the fuel pump for alerting me to the danger even though I just ignored it anyway. Lastly I'd like to thank you, the good people for nominating me for this award. I dedicate this to you!

Well done DM! We wish you all the very best in the future production of chaos and mayhem in the field of car electrics.

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