



BC500 - VOLVO 850 INSTALLATION GUIDE



Civinco is a Swedish based company that makes a very interesting piggyback that we now sell. The BC500 is a piggyback designed to integrate seamlessly with the harder to tune front wheel drive Volvos. Currently we are focused on M4.X controlled cars but Civinco has had great success with ME7 cars (and numerous other brands).

What makes Civinco so unique in our minds is the way in which it works. Many piggybacks simply alter MAF values to the ECU in order to "trick" the computer into changing the Air Fuel values of the motor. The problem is, (even more so on turbo cars) that the typical approach goes something like this: Install bigger injectors, use an AFC type device (MAF altering only) to scale the MAF input down ie lean the motor out. The problem is, your fighting a double edged blade. As you "lower" the MAF values, the ECU typically advances ignition timing. Not a good thing for forced induction applications.



What makes Civinco different is, it thinks more like a complete stand alone fuel system. It takes the signals that were originally going to the coil and fuel injectors, and sends those to the Civinco ECU. Then YOU tell the ECU exactly what values to send out to the injectors or coil. The main advantage in this is it allows the ECU to control all of its mundane functions (idle, warm up, start up, cruise, light throttle, AC function ect ect) while giving you *complete* control over injection and timing values when you want.

On top of this, Civinco is capable of clamping the MAF signal to the ECU, using MAP (MAF elimination), overriding fuel and spark cuts and installing larger injectors (can scale down over a 100% larger injectors to send the correct duty cycle to the injectors) is easier than ever. Not to mention sequential fuel control.

Other features include PWM outputs (control boost, water injector, NOS or anything PWM), and analog outputs (Shift lights, RPM window switches ect). When setup for an I5 you are limited to 1 PWM and 1 analog output.

Lastly, Civinco saves its maps to smart media cards and provides 3 cards with the box. This allows you to create 3 separate maps that you can plug in at will (valet mode, race gas and pump gas for instance). Obviously more cards can be bought for more maps. Unlike some other brands the software *IS* included allowing the owner of the vehicle to tune it themselves.

The way we believe is best to use the BC500's outputs is to use the PWM for water injection control and the analog output for an RPM window switch/shift light. We prefer to use an external electronic boost controller for a couple of reasons. Since you can't just turn a knob to change the boost via Civinco, it is easier and more flexible to use one of the many aftermarket electronic boost controllers. By saving the PWM output for something like water injection, once dialed in, H2O injection is not something that you will need or want to adjust constantly.

Early test have shown fantastic results using Civinco.



So here's what the box and the harness looks like.



So I started out by moving the Strut bar out of my way, pulling off the rain guard under the windshield, removing the fuse block cover and raising the fuse block up a bit, and opening the wire guide for the stock harness.



Here's about the most room you're going to get without disconnecting a bunch of stuff from the fuse block. One thing to add is that to get it up this far I had to go under the dash and remove some relays that were catching on the edge of the plastic.





Initial wire routing to make sure that I had enough wire length to do what I wanted.



I ran the injector loom between the fuel rail and intake manifold. Towards the passenger side of the car by the fuel regulator things got interesting and I had to loosen the fuel rail a bit to have enough play to get the connectors through.



Here's all of the fuel injector connections made. If you get one of these make sure that the wires are going to the correct pins on the connectors. Notice on the second from the left connector the wires are reversed. This cost me about 30 min of troubleshooting once I got everything connected.





All the wires tucked and ready for the cover to go back on.



In order to route the wiring I removed the air box.



This is where I tapped into the white wire for MAF signaling.





This is where I cut into the yellow/white wire for ignition control.



Pushing the Civinco wiring harness and connector through the weather sealing. Be careful if you go this route, it is easy to bend the pin protectors on the connector. It also takes a bit of patience. If I had to do this again, I would probably get the same color wires cut the connector off and solder it back in once I ran the harness.



After I finally got it through the rubber, I ran it to the drivers side of the fuse block and into the cabin. I then buttoned down the fuse block. Oh yeah, I also cut the corrugated plastic wire wrap just before the rubber piece and then put it on inside the cabin. I wasn't about to try and get the wrap though that rubber piece.





Since I had everything apart and I planned on running my water injection with the Civinco, I decided to move the pump closer to the tank. So I removed the tank, battery and battery tray. I then mounted the pump on a cross beam just below the headlight. Surprisingly enough there are some tapped holes that are the perfect distance apart for a solid mount.



Here's a closer picture.



When I went to put the battery tray back in, the solenoid mounted to the bottom was hitting the erl pump. So I changed the way it is mounted.





Another pic.



Battery tray back in with no more problems.



Here's a vacuum splitter that a buddy made for me. Not really necessary, but I like it more than using T splitters.





Battery, air box, and water reservoir back in. I like having a shorter feed line to the pump, now I don't need the "helper" pump to keep the ERL supplied.



Everything else put back in place. I ran the Civinco wiring in the factory runners everywhere that I could.



Now to the inside of the car. I pulled back the carpet to find good grounding points for the Civinco box. I was unsure how/where I wanted to actually mount the box. Remember that I'm trying to keep it out of site, but still accessible.





Because I was running out of time and needed to have the car back together so I could get to work the next morning, I decided to just use double sided tape for now and find a different way when I have more time.



Here's where I ended up grounding the box.



A picture of the interior back together.



I've been throwing a few Ideas around in my head as to how I want to permanently mount the box. I think that I'm going to cut the panel and recess it and then try to make an access panel to cover it.

So that's the way I did it. It seems like Josh and Conner ran it through on the other side of the car and it took a lot less time than I did.