Product Review: VW/Audi

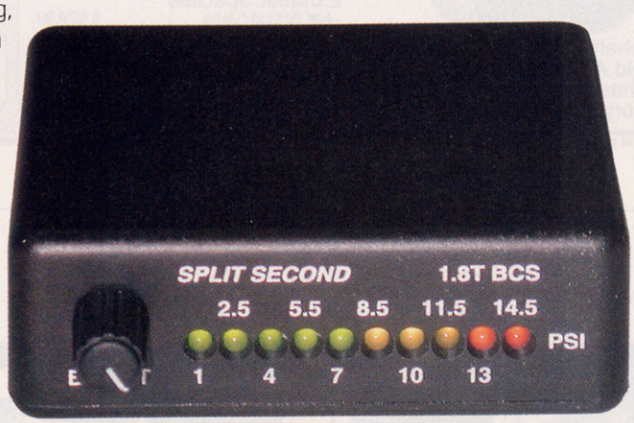
ABD/Split Second BCS Boost Controller

by Brendan Lopez
Photos by Rob Hallstrom

In his comedic socio-satirical book, "Class, A Guide Through The American Status System," Professor Paul Fussell condemns the proletariat's penchant for adjustable things. Citing the example of the adjustable one-size-fits-all baseball cap, Fussell astutely points out that the adjustable nature makes the buyer do the work formerly thought to be the duty of the seller. Additionally, the "convenience of the seller is disguised by publicity and fraud to pass for convenience for the buyer." Insofar as baseball caps are concerned, I'll bite.

With regards to cars and tuning, adjustability is a good thing. Never was a competition won without being able to optimize the vehicle for the immediate conditions. With *european car*'s 1.8T Challenge at hand, it's time to revisit an adjustable and popular 1.8t mod.

It's been said enough times—enough times to have been said *ad nauseam*—but I'll say it *ad nauseam* plus one. Volkswagen/Audi's 1.8t is the ultimate tuner's engine, its 150+ bhp output is easily adjusted for significant gains.



Cheesebugga Cheesebugga Chip Chip

Having toyed with the 1.8t engine since its inception, I used to unequivocally state that the first step to 1.8t nirvana should be a chip. More so than any other modification at the time, a chip provided that extra shot akin to a Starbucks Red Eye the morning after a rough night.

This chip-as-a-first-step ethos began to unravel as a new aftermarket technology emerged which provided chip-like performance, though with a number of added benefits. This technology, in the form of Split Second's 1.8t BCS boost controller, was given an in-depth review in the May 2001 issue of *european car*. For those new to the magazine, here's a quick rundown.

The Split Second BCS Boost Controller, now privately labeled by Autobahn Designs, is a signal conditioner that takes inputs from the existing factory engine-management sensors, then tricks the engine into delivering more boost and, as a result, more fuel. This is in contrast to a chip, which is a new software map burned into a new chip soldered to the board, and thus requiring shipping off the car's ECU. Because the BCS does not replace or tamper with the existing engine management software, there is no danger of a dealership flashing your box with a new factory software update.

The ABD/Split Second BCS has recently been given an adjustability feature, allowing custom tailoring to an individual engine beyond the already convenient multi-detent setup. The reason for the added feature is simple: Although 1.8t engines are essentially the same, the programming, piping and intercooler configuration can allow subtle changes for increased performance between different vehicles. Additionally, regional ambient temperatures and gasoline quality can be factored in to provide the right range of adjustment for the given circumstances, not to mention track days and the introduction of race fuel.

Mo Bettah Boost

The BCS Boost Controller is a compact unit measuring about 1-in. high, 3-in. wide and 2.5-in. deep. The front of the unit has a small knob on the left and 10 LEDs on the right, with five colored green followed by three yellow and two red. The LEDs are one of the neat features of the BCS; they serve as an accurate boost gauge reading from 0 to 14.5 psi. The back of the unit has a sheath-encased bundle of wires (more on this later) and a potentiometer for minute adjustments. As mentioned earlier, the new feature added to the BCS is a calibration function that allows one to adjust the range of operation from the main adjustment knob to suit the individual configuration of the car.

Installing the BCS

Installing the BCS can be done at home using simple hand tools (a full BSC install on a 2000 Golf 1.8T is on europeancarweb.com). Essentially, there are six wires, four of which are tee-tapped into the existing ECU wiring harness. One wire is cut and butt spliced onto two others as part of the tricking process. The BCS kit includes these connectors, but savvy individuals have been known to solder the wires for a cleaner appearance.

The BCS can be placed anywhere in the car without compromising its job, but because it has a functioning boost gauge, it makes sense to place it somewhere visible. In his review 2 years ago, James Sly placed the BCS in the dash compartment between the radio and climate controls. For the Web-exclusive article, we placed the BCS on top of the steering column housing so that it's visible along with the other dash gauges. Other placement possibilities include on top of the dash or to the right of the ignition.

Installation Overview

The basic steps can be summed up as follows:

1. Mount the BCS where you want using the provided double-sided Velcro™.

2. Run the wiring harness into the engine compartment, near the ECU. Golf and Jetta drivers will have to remove the wiper arms and cover; Passat owners will have to remove a plastic cover.

3. Pull the ECU wiring harness connectors away from the ECU.

4. Splice the BCS wires away from the connector.

5. Verify wiring connections.

6. Clean up installation (zip ties, re-install connectors).

7. Calibrate BCS using the rear potentiometer.

The Proof is in the Pudding

To test the ABD/Split Second BCS, we headed over to the Primedia Tech Center and our very own Dynojet chassis dyno. Primedia's Dominic Conti, the Tech Center/Dynojet guru, put it through the paces.

Dynojet dynos operate in a simple fashion. Basically, the car's tires turn a large drum, and this is converted to horsepower and torque. This is in marked contrast to a water brake dyno, where water is used as a mechanical resistance medium. Dynojet dynos have proven to be remarkably consistent from one to the next.

For the purpose of this test, we used one car, one dyno, one operator and 18 minutes of time. As mentioned early on, the BCS has a main front-mounted knob that controls the amount of additional boost created. When the knob is turned all the way to the left, there is no signal conditioning, and the car behaves as stock. When turned all the way to the right, and properly calibrated, the BCS will deliver 14.5 psi of boost.

To see this in effect, we did two runs each with the knob all the way to the left, straight up (50%) and all the way to the right to see how it fared. We're not concerned as much with absolute numbers as we are the delta, that is to say the relative change.

Moving from 0 to 50% on the knob adjustment yielded +17 hp and +15.5 lb-ft of torque. Cranking the knob all the way yielded +31.4 hp and +33.4 lb-ft. As a percentage, these values are less than we experienced the first time around when we first looked at the BCS. In hindsight, we should have waited longer between runs to allow the intercooler core to cool down or sprayed it with water to normalize the temperature.

Bottom Line

Split Second/ABD's BCS is an effective means for gaining meaningful horsepower and torque while at the same time retaining the stock engine management chip. It can be installed using only a few hand tools by a moderately skilled enthusiast. If you have a drive-by-wire 1.8t, and particularly an automatic, the BCS might just be exactly the mod you're looking for.

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